1925—The Profitable Year

WHEN the year 1923 was born, there was quite some rejoicing because old 1922 was such a crabby old guy that everybody was glad to bury him. 1923 was a likely chap, good looking and promising, and 1923 started well.

The consumers of commodities in general and paper in particular liked the looks of conditions. The purging process that had been carried on in prices during the years 1921 and 1922 had brought values of paper and other commodities to a very reasonable level, and reduced high-priced inventories to negligible proportions. So the consumers were prepared to place large orders for future delivery and did so, as a mark of their confidence. But an extraordinary thing happened.

The executives of both labor and factories did a very unwise thing. As soon as this fine large volume of orders appeared in January, 1923, and continued coming in during February and March, the labor executives began to demand increased wages. That was the first foolish move. Then the executives of the factories gave in to the demands of labor leaders, conceded the higher wages, and charged the advance into the cost of various commodities, endeavoring to pass the advance on to the consumer to pay. That was the second mistake.

Then the consumers in the United States awoke to what was going on, and they rebelled. In April and May of that year they let up on placing future orders, and by June and July they quit buying altogether except for what immediate "fill-ins" they had to have. The over-production of agricutlural crops and the slump in farm prices came to their aid. The fall business was disappointing; prices were shaded; then cut, and finally slashed, and the end of that year which started out so brave and promising, ended dismally like the dud it was. It started as a seller's market and ended with the buyers in absolute control.

Labor lost, factory executives lost, and 1924 came in with the fight of the year well defined. It was this: Mr. Consumer said to Mr. Producer, "We'll only buy from hand to mouth, only what we need from week to week, until you show us indubitably that your labor is stabilized and willing to work steadily and without interruption on a profitable wage scale, without attempting to boost their pay higher and gouge us deeper, and also until your capital account has purged its division of industry of every unnecessary, unproductive and parasitic cost which, during the past few years of extravagant executive costs, have been charged to me, and that I have paid."

The challenge fell on fertile ground and at an opportune time. This battle between the consumer and the producer carried on sadly for both labor and factory executives throughout the entire year of 1924. It could only have one outcome; the consumer won, of course—won, hands down!

Labor costs have been stabilized. Labor constitutes 75 per cent of the cost of all commodities, and it is at this present writing, January 1, 1925, down to the lowest level that consumer boycott and pressure can drive it.

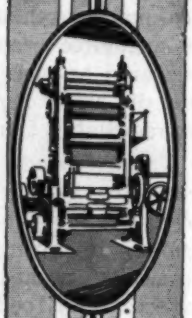
That left only the item of factory overhead, or capital account, 25 per cent of the total commodity cost, to settle, and it has been stabilized also. Sons of presidents, and directors, and relatives of stockholders holding unproductive jobs at high rates of pay have been separated from thousands of payrolls. Duplicated processes and duplicated and overlapping efforts have been eliminated. Consolidation of interests for the purpose of cutting down expenses were and are still the order of the day. The introduction of labor-saving machinery is a recognized factor of current necessity. Every item of cost which enters into the price factor of commodities has been microscoped and thrown out, or pared down in order that commodities may be brought to the consumer on a basis of value that will be competitive and compensatory.

It's done! The job is fairly complete! It took two long years for executives of all grades to learn the bully but expensive lesson, that you can't monkey with and juggle your values, and thereby fool the consumers all the time. Of course, there are some divisions of industry that we might mention whose purblind executives still think that they can control trade and commerce by mere legerdemain of discount lists and price fluctuations. But they can't get away with it. They are the losers—they and their stockholders. They passed their dividends because they didn't know what to do or how to do it. However, they are in the minority, headed for the discard, and the financial graveyard. But look at 1925; every factor healthy and stable! 1924 was the year in which we trained our industrial Uncle Sam for the wonderful marathon race of 1925. If we had not had 1924 with its stabilizing battles, it would be impossible to have our 1925 with its certitude of gratifying profits.

The consumer wants to buy. He is satisfied that commodity values as of January 1, 1925, are stable. He is placing futures in fair volume already. He will place increasingly large future orders as the year progresses, provided always that the commodity markets remain stable. Keep them stable.

Capture the already-willing-to-be-captured confidence of the commodity consumers and you'll round out the 1925 cycle with a handsome profit in your exchequer.

Standard Lubricants will Reduce Friction Losses



IT will be to your advantage to use only Standard Oil Company (Indiana) Oils and Greases to lubricate each machine and bearing throughout your entire plant. From this one source you can obtain every kind and grade of lubricant you need for their proper lubrication and in any quantity.

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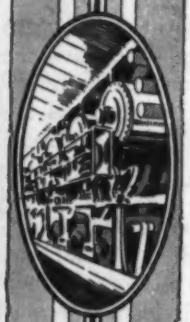
They are made to meet the exacting lubrication requirements of every kind of machine. The right Standard lubricant, used in the right place, will bring about greatly improved operating conditions and effect important economies. They will assuredly reduce loss of power by greatly reducing friction.



Standard Oils and Greases

are of highest quality and absolute uniformity. Each is made to meet exactly some specific lubricating need and when the proper lubricant is selected and properly used, it renders the fullest measure of satisfaction and service.

To be absolutely certain that the most economical lubricants will be used, we have placed at your service our staff of lubricating engineers. One of these engineers will help you in every way possible at any time you may call. Their technical knowledge of lubricants and lubricating problems and their broad practical experience enables them to render a service of inestimable value to you. No charge is made for this service.

A 'phone call or letter to our nearest branch will get results

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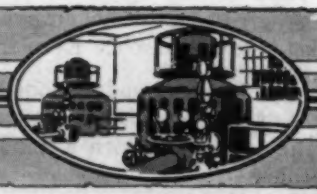

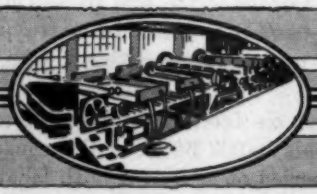

EDITORIALS

Manufacturers Predict Better Business

IT IS always interesting at the beginning of a new year to learn what prominent men in the paper industry think as to conditions for the coming twelve months. Collaborating with other men in an endeavor to find out what men in different industries thought about the prospects for business, we sent out a questionnaire to many of the manufacturers in this industry and received replies from 172 paper and pulp manufacturers, and these were scattered over 24 states.

The first question asked was, what, in their opinion, would be the percentage of production during the first six months of 1925 compared to the average for 1924. The second question asked was, what was their opinion as to the second six months. The third question was, what was the horsepower represented by each company reporting. The companies reporting represented something over 40 per cent of the horsepower used in the industry.

The approximate average production for the first six months of 1925 as compared to the average production of 1924, as based on the prophesies of these mill men, was a little less than 105 per cent. Quite a number of mills reported that they expected increases, while others reported that they expected decreases.

As to the second six months, there were many guesses made, but a large number of the manufacturers seemed to prefer not to make any definite guess, because the period from July 1 to December 31, was too far away to make any guess on.

Among the other industries reporting to a considerable degree in this connection were the glass industry, wood working industry, cement industry, brick and clay industry, flour and saw mills. The consensus of opinion of the leading men in all of these industries, as well as the paper and pulp industry, indicates that these manufacturers feel that the first six months of 1925 will average from four to fourteen per cent better than the average during 1924.

Figures secured show that the second six months of 1925 will average around about five per cent better than the average for the first six months of 1925. These figures, however, do not carry such an assurance as for the first six months, as there were many men who reported in reference to the first six months who did not care to guess at all about the second six, indicating that the figures they gave for the second six months were more in the nature of hopes than actual beliefs.

As prosperity in the paper business depends upon prosperity in the other industries, it might be well to mention that a large number of reports were sent in by various industries, but not sufficiently large to divide these up into different classes. Taken as a whole, however, the reports show that there was an expectation of about fifteen per cent increase in business during the first six months of the new year as compared with the average for 1924. These industries included heating and ventilating, wire, chemical, laundry machinery, foundry, office equipment, textile, electrical, rubber, meat packing, metal working, paint, automobile accessory, farm implements, machine tools, steel, household appliances, etc.

It can be seen from the above that the leading men in most all of the different industries in this country expect that business during the first six months of 1925 is going to be considerably better than it was during the average of 1924, and we can only hope that these prognostications will be borne out in fact.

The publisher and staff of The PAPER INDUSTRY are grateful and deeply indebted to our many friends who have remembered us during the recent holiday season with Christmas greetings. It would take considerable space to list all of these, but we want everyone who remembered us in this connection, to know that we appreciated these remembrances. It is the sincere desire and wish of all of us that every one connected any way with this great industry will have an extremely profitable and contented year during 1925.

A Wonderful Adventure

TO THOSE who have the pleasure once a month of reading a very uplifting little house organ, called The Lombard News Letter, edited by Thomas Dreier of Lombard & Company, manufacturers of pulp stones, Boston, the following will be familiar:

"What a thrill there is in entertaining the desire to become better! It doesn't come often to most of us, but it does come to every one of us now and then. If we are wise we will waste no time regretting our failures of the past. That gains nothing for us or for anyone else. But we will surrender ourselves completely to the new emotion which promises to open to us a glorious world of finer and richer sensations. We want to become better because we know for a certainty we will meet better people. When we are fine, finer friends come to us. When there is harmony in our hearts, when we feel like embracing the world, we find we have stumbled into the gardens of paradise. It is a wonderful adventure to surrender to an intense desire to become better."

ECONOMY

APPLETON FELTS and Jackets are used by the foremost paper manufacturers.

The economy of using these products is not an abstract theory—it is based upon accurate and reliable figures of their own business.

A product that is made from the finest materials procurable contains the vital factors of quality and body by reason of which long service is assured—and as this applies specifically to Appleton Felts and Jackets they are the most economical to use.

The strongest and finest wool, which is the best and most costly, is used in making our products. Men who are masters of their trade create with pride and precision from this pure wool the two finest products of their kind ever made—Appleton Felts and Jackets.

Their work and ability is directed gently by an invisible force of great importance—the knowledge and experience gained by this company in 34 years in making products which would serve paper manufacturers more economically.

It is inevitable that paper manufacturers use, and some of them have done so for 34 years now, for the sake of economy Appleton Felts and Jackets—and if you are not using them it is important, to you, that you investigate immediately "how" and "why" it is an economy for your company to use our products.

Appleton

Felts and Jackets

Appleton Woolen Mills

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THE PAPER INDUSTRY

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Vol. 6 JANUARY, 1925 No. 10

The New South

By EDWARD B. FRITZ

IN CONSIDERING the question of paper making for the coming years, as to where the future paper mills will be built and where the supply of raw material will come from, it has often been pointed out that the South seems to be the logical field for the future paper mill; that is, mills that would manufacture paper made from wood as a raw material.

We know that the wood supply in the northern states, such as Maine, New Hampshire and Vermont in the East, and Michigan, Wisconsin, Minnesota, etc., in the Middle West, is pretty nearly exhausted. There are certain people in this industry who claim this is not true, but it is true, at least to the extent that it is hard to get and the price is going higher each year, so that the finished product must necessarily bring a higher price.

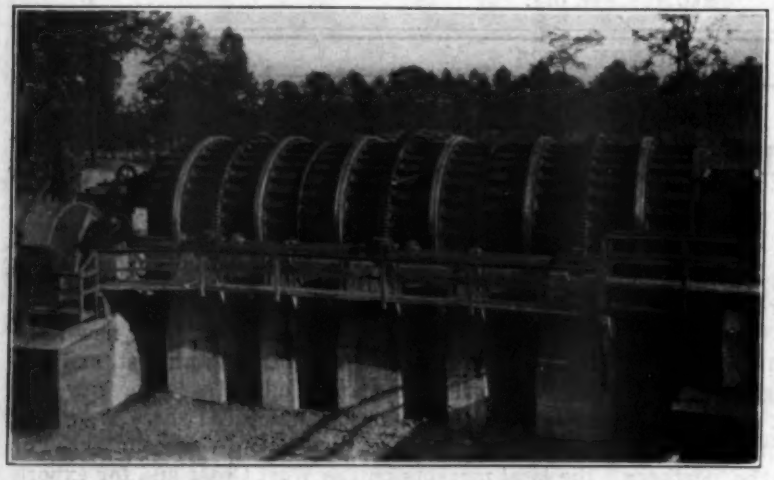
Recently there have been a number of new mills built on the Pacific Coast in the Northwest, and this territory presents certain advantages for raw material, but the paper manufactured there is too far away from the main markets in this country. For the local markets on the West Coast and for export, the Pacific Coast mills are ideally situated.

This, however, is primarily a story of the South—the New South—for we believe the South is coming to be quite a different section to what it has always been known. There have always been some mills in the South, but it has only been in recent years that a

The Administration Building, Brown Paper Mill Co., Inc., West Monroe, La.

few pioneers have blazed the way into the New South and have had sufficient foresight, ability, agressiveness and daring to put up real mills in the southern states, and it was my pleasure recently to visit a number of these mills and was considerably surprised at what I saw on this trip.

Historians tell us that practically the first paper mill built in the South, or what might be considered



Paulson barking drum, made by Manitowoc Engineering Works, at the Brown Paper Mill

south, was built in the neighborhood of Baltimore, and that these early mills were started about 1778. Along about 1789, a mill was projected in North Carolina, and it is said that the first paper mill west of the Susquehanna River was erected at Georgetown, Kentucky, in 1793. This mill was built by Rev. Elijah Craig, a Baptist preacher. The building was 40x60 feet in size, two and one-half stories above the ground with basement. A dam had been erected in 1789, and here was turned out the first sheet of paper made in this territory. This mill was burned down in 1837.

The following bit of history is furnished us by Mr. C. B. Edwards, one of the oldest and best known citizens of Raleigh, North Carolina:

"Before 1850 a paper mill was operated at Salem, N. C., and another one near Raleigh, N. C., at Crabtree Creek. About 1855 a mill was built at the Falls of Neuse, and another at Milburnie, six miles east of Raleigh. The mill at the Falls of Neuse proved a failure and was converted into a cotton factory. The one at Milburnie was burned down in 1865 by Sherman's army, when it marched through North Carolina, and was never re-established. The mill at Salem, N. C., and the one near Raleigh had cylinder machines, and the latter two had Fourdrinier machines.

"I do not know what became of the mill at Salem, but the one on Crabtree, near Raleigh, was converted into a powder mill to make powder for use in the war between the States, and was later blown up. The writer worked as second-hand or back-tender at Milburnie for four years, from 1857 until 1861, when he came to Raleigh to join Ramseur's battery of artillery in company with a young friend, W. B. W. Williams, who was accepted into the army and was killed at the battle of Williamsburg, in 1862. I was not accepted on account of size and weight, being only 17 years of age.

"I then made cartridges for a few months and later entered as an apprentice in a printing office.

"All of these mills made paper of rags, wood fibre not having been discovered. The Milburnie mill ran from Sunday night at twelve o'clock until Saturday night at twelve o'clock, not violating the Sabbath day. They made paper for State papers that gave them orders and had a standing order for all they could make for the New York Times, in size 23x36 inches, that being the size of two leaves of that paper at that time. Since 1865, so far as I know, there has been no paper made from rags in this State."

In 1860 there were quite a few paper mills in the eastern seaboard states—that is, Virginia had three, North Carolina had six, South Carolina had three, Georgia had four, Kentucky had two and Tennessee had two. Today Virginia has fourteen, North Carolina has four, or less in number than it had in 1860. South Carolina has two, one less than it had in 1860. Today Georgia has four and Kentucky has none, while Tennessee has seven.

Naturally, there is no comparison to the size or tonnage turned out by these mills around 1860 to those turned out today.

After the period between 1860 and 1870, however, many of these old mills were abandoned and for a long time there was very little paper made in the southern States.

On making this trip through the South, the first stop I made was at Jackson, Miss., the capital of that State. For anyone making a trip through the South and getting near Jackson, it is worth one's while to stop off in this progressive southern city. One of the most interesting sights there is the old State capitol, which, I believe, was the first capitol of the Southern Confederacy and the headquarters of Jeff Davis.

Brown Paper Company

From Jackson it is quite a number of hours' ride over to Monroe, La., the home of one of the finest paper mills, I believe, in the United States; that is the Brown Paper Company. The plant is situated a mile or so outside of West Monroe, which is a distinct incorporation from Monroe. There are very few locations for a paper mill that have a more im-

pressive view upon nearing it than this one. The mill buildings are all of the latest type and the administration building, about which considerable has been written and said, is the finest one that I have ever seen connected with a paper mill. It is not the largest, however, but it is different from the rest in its uniqueness.

This administration building was put up along old English architectural lines. The accompanying picture gives a better view of it than I could in words. The general manager's office, which is the assembly room, is a very large room, beautifully furnished in period furniture and with magnificent tapestry on the walls, with blue velour drapes at the window, with a rose and blue Bengal rug covering the middle of the room. A huge fireplace adorns the north end, and it is set with brown paneled cabinets on either side and above. The whole structure is roofed with heavy slate slabs and these are also used in the main reception room. James Crabtree Rogers was the architect for the building and also designed all of the furniture, which is made especially for this building.

George W. Hardy, of New York, was the architect for the building of the paper and pulp mill, the plant being built under the direction of Mr. McDonald, of Mr. Hardy's office. Mr. McDonald, however, is now the permanent consulting engineer of the company.

The mill proper is 700 feet long, and at present has only one paper machine, the paper machine room being 280 feet long. All of the roofs of these buildings are of gypsum and was furnished by the Keystone Gypsum Fireproofing Co., of New York City.

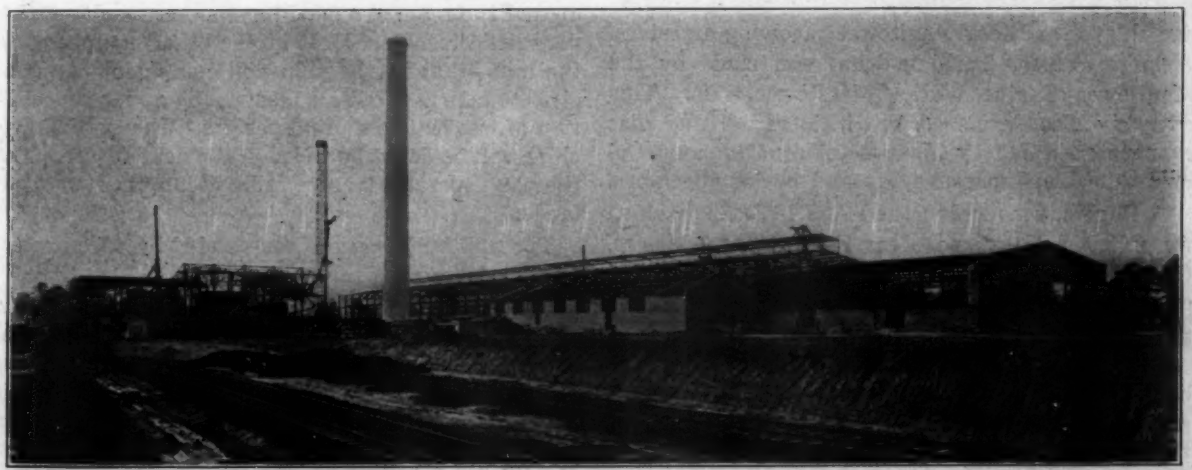
The paper machine was furnished by Pusey & Jones Co., of Wilmington, Del., and is equipped with a Beloit removable Fourdrinier part.

All rolls on the machine, except presses and dryers, are equipped with S. K. F. ball bearings. The press rolls are of granite.

What might ordinarily be called the beater room does not have any regular beaters at all, but has six large Shartle Brothers Miami Jordan engines and four Claflin refining engines. The only regular beater that is in the mill is in the basement, which takes care of the broke from the machine. Two thousand one hundred horsepower is used on these Jordans and Claflins.

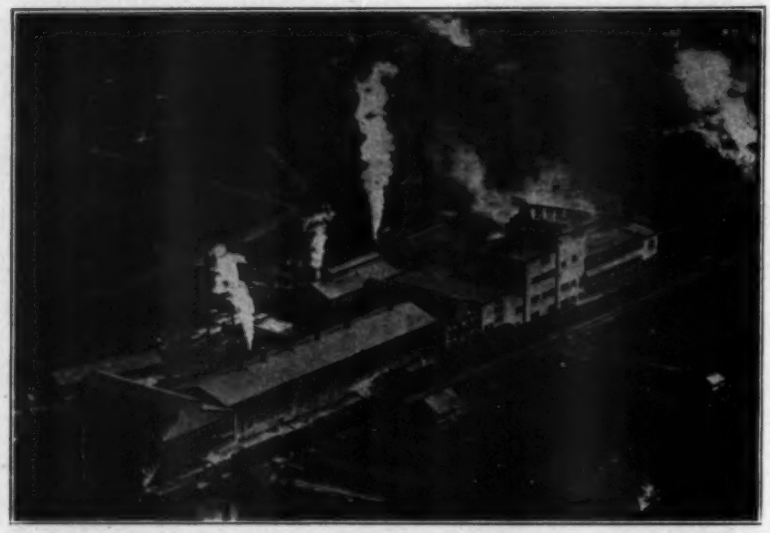
Four 2,500 H. P., high pressure Badenhausen boilers in the Brown Paper Company's mill, using gas as fuel

The machine is equipped with Bird screens, and a big J. H. Horne & Sons Co. cutter is in the finishing room. This is a 156-inch trim machine and the production is automatically piled, jogged, counted and



General view of construction, Louisiana Pulp & Paper Co., Bastrop, La. Buildings on extreme left—Wood Room and Recovery Room; right center—Supply House; large building in center—Machine Room, Finishing Room and Shipping Room

tagged by an Erie Automatic Lay-Boy and Mamco counter and marker furnished by the Maxson Automatic Machinery Company, Westerly, R. I. This machine is being used very extensively in the progressive mills, while the Mamco counter is a recent development to overcome the uncertainty of other methods of counting and hand tagging. It will count reams or quires with mechanical accuracy and automatically insert tags in the piles at any desired point. Two operatives are required to run the cutter, Lay-Boy and counter, which lays six piles, either quire or ream counted.



Bird's eye view of the mills of the Bastrop Pulp & Paper Co., Bastrop, La.

The paper machine is equipped with a Westinghouse sectional electric drive, described in another article in this issue, showing a picture of this mill.

The paper machine is 176 inches wide and is said to be the widest Kraft paper machine running in this country on Kraft papers.

Among the other equipment in the plant is a Carthage chipper and four Manitowoc revolving digesters. A large Paulson barking drum was made by the Manitowoc Engine Works, Manitowoc, Wis. This company also furnished the incinerators and disc evaporators. Jeffrey Manufacturing Company, Columbus, Ohio, the conveyors and bucket elevators.

A Rogers wet machine and A. D. Woods machine were furnished by the Glens Falls Machine Works, Glens Falls, New York. The Machinery Company of America, Big Rapids, Mich., furnished the knife grinders.

The power plant contains 3,750 K. W. of the newest bleeder type General Electric turbines. Flow meters are used in every possible place and these are also furnished by the General Electric Company.

The boiler room contains four, 2,500 H. P. high pressure boilers made by the Badenhausen Corporation of Philadelphia. These boilers use gas as a fuel, as this territory is not so far distant from the gas fields. I understand that gas is secured at an extremely low rate, which helps considerably to cut down the cost of manufacture. The picture shows the cleanest boiler room I ever saw.

The only wood that is used in the construction of either the pulp or the paper mill are the floors in the finishing room.

The Western Paper Makers Chemical Company's emulsifying system is installed to furnish the rosin size. This same system was furnished for the mills at Bastrop and Bogalusa. A special system of their own has been installed to handle the alum, and all alum lines are made of special metal furnished by the Duriron Company, of Dayton, Ohio. A big Chesapeake crane extends across the machine room.

This mill is an exceptionally light one, having very large window areas with a basement as light as the rest of the mill. A special room in the basement contains all the dangerous electric switches, which are kept segregated from the other equipment, and even though this has been done, I understand that there was a severe accident there not long ago. Large storerooms and a big machine shop fully equipped are also installed. The mill is equipped throughout with both Toledo and Fairbanks-Morse platform dial scales, as well as Shepard lift trucks with Standard pressed steel platforms.

The Detroit Graphite Company, Detroit, Mich., furnished all the different kinds of paint used in this plant.

The buildings were so constructed and the end of the machine room so put up that this can be opened up and the room extended for another machine with very little trouble. Most of the other equipment in the mill—that is, the pulp mill equipment—is sufficient to take care of an added machine with the addition of one or two more digesters. This second machine will no doubt be added in the near future. The company operates its own railroad into its own woodlands.

The mill buildings are surrounded by wire protection Cyclone fence.

The Brown Paper Company gets its name from Mr. H. L. Brown, the president, who comes from a prominent family at Orange, Tex. He is also one of the officers and owners of the mill at this point. He is president of a national bank and is interested in many of the large lumbering companies in that section of the country.

George S. Holmes is vice-president and general

manager of the company, and came to Monroe after being general manager of the Yellow Pine Paper Mills at Orange, Tex.

E. W. Brown, Jr., is vice-president, and R. A. Moore is also a vice-president. George M. Sells is treasurer of the company and W. J. Meyer is sales manager.

Everything has been done to furnish this plant with a continuous flow of raw materials. This company owns about 40,000 acres of fine pulp wood land which are being cut over in such a manner that it will cause trees to be reproduced in twelve years' time, thus assuring perpetual supply. Possibly my saying twelve years may sound rather peculiar to some of our northern paper manufacturers, but it must be remembered that wood grows faster in the southern territory than it does in the northern states. While the long leaf pine in the southern states does not grow very fast, the short leaf pine and several other grades grows as much as one inch in diameter in a year, so it can be seen that with proper cutting of old forests and allowing the young trees to stand and given proper care that it is not very many years before the same ground can be gone over again.

Louisiana Pulp and Paper Company

The next point I visited was at Bastrop, and after seeing the plant of the Bastrop Pulp and Paper Company, which was built several years ago, I paid a visit to the new plant of the Louisiana Pulp and Paper Company, which is being built only a short distance from the other plant.

Mr. R. J. Cullen, who is vice-president and general manager of the Bastrop Pulp and Paper Company, is the moving spirit and general manager of the new Louisiana Pulp and Paper Company. Mr. Cullen is one of the pioneers in the southern Kraft industry, having come to Bastrop after being associated with the Bogalusa Paper Company, at Bogalusa, La., for some years. The plant of the Louisiana Pulp and Paper Company is just being built, but from the appearance of its size and noting the equipment that has already been purchased, it can be seen that it will possibly be one of the largest, if not the largest, and one of the finest paper mills ever built on this continent for the manufacture of wrapping papers. There will be two 168-inch Fourdrinier machines and two Yankee machines. The exact size of the latter have not been decided upon, but the presumption is that they will be 128 inches wide, and it is expected that these four machines will turn out more than 150 tons of Kraft paper daily. All of these machines are being built by the Beloit Iron Works, of Beloit, Wis., and will be equipped with all of the latest devices, including ball and roller bearings and removable Fourdrinier parts and will have the Fulton Engineering Company's system for draining the dryers.

The paper mill proper is 900 feet long, while the pulp mill will be 192x227 feet. A large separate building is being put up for a machine shop, and when finished will be as complete an outfit as found in any manufacturing plant in the country.

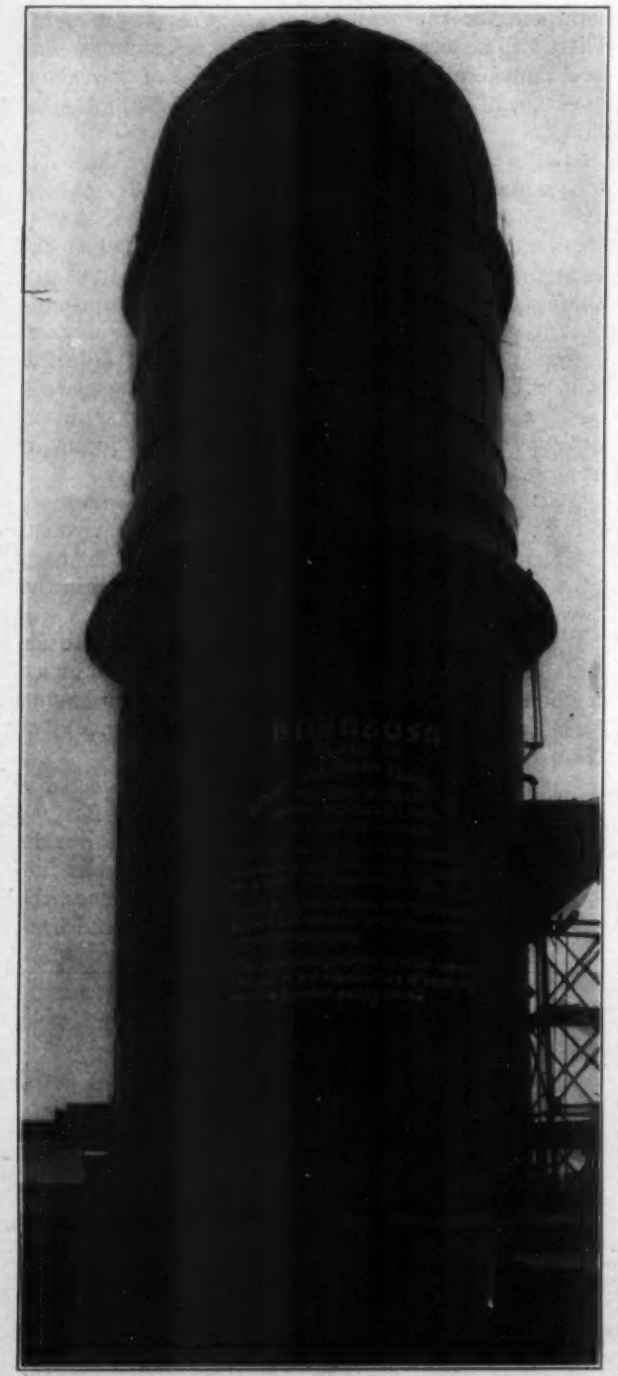
The layout of this mill is quite different from most other mills, in that the machine room, beater room, etc., will be in one open long room with the finishing room at the end. This machine room will contain the two big Fourdriniers, and the two big Yankees will be situated in an adjoining room on the side of these. This plant will also be of daylight construction with tremendous window areas, the steel windows having been furnished by the Truscon Steel Company, of Youngstown, Ohio.

The property on which this new mill is erected is served by five different railroad tracks, and Bastrop being in the center of what is said to be the world's greatest natural gas field, gas can be utilized as fuel and secured at an extremely low rate. However, the company will use 6,800 H. P. electricity, secured from

Mill of the Bogalusa Paper Company, Bogalusa, La.

the Arkansas Light and Power Company, which controls a number of water power installations not far away from this point.

The machine room will be covered with gypsum roofs, which are poured in shape and furnished by the Lathrop-Hoge Company, of Cincinnati, Ohio. The power plan will have six 825 H. P. high pressure boilers, furnished by the Casey-Hedges Company, of Chattanooga, Tenn. Foster superheaters will be used in connection. Water for the mills will be furnished by five deep wells furnished by Layne & Bowler Co., of Memphis, Tenn. Each will supply 1,750 gallons of water per minute.



The former morgue at Bogalusa, La. The inscription on this incinerator or refuse burner tells a wonderful story. It cost a lot of money to build and more to feed, but it now has no further use than as a monument to what was formerly a means of getting rid of a waste material, but what is now known to be a good paper making material. This should be an object lesson to other similar wastes in the South

The Chattanooga Boiler and Tank Works, of Chattanooga, Tenn., will furnish the steel tank and tower, 130 feet high to the balcony, the tank 35 feet in height.

The Heine Chimney Company, of Chicago, built the concrete chimney, 205 feet high. The Zaremba Company, of Buffalo, furnished five evaporators for the black liquor, while the Manitowoc Engineering Works furnished eight digesters, six incinerators, barking drum and six disc evaporators.

The paper machines will be turbine driven, the turbines being furnished by the Terry Steam Turbine Company, of Hartford, Conn.

All of the other roofs, aside from the machine room, will be corrugated asbestos.

The Allis-Chalmers Company, of Milwaukee, furnished all of the electrical machinery, and what is said to be the largest electrical switchboard in the South was furnished by the General Electric Company.

John I. Beggs, of Milwaukee, is president of this company, while Mr. Cullen is vice-president and general manager, H. A. L. Swan, secretary-treasurer. Mr. Swan, by the way, has been associated with a number of paper mills and in most cases, in association with Mr. Cullen before the latter's going to the South. Major Friend is the mechanical engineer on the job and is making a mighty good job of it.

One of the first things that the management of these new mills in the South thinks about is the supply of raw materials, not only for today and tomorrow, but for an everlasting supply. The day that I visited this plant, arrangements had been made for an additional supply which now gives this company the ownership of 300,000 acres of land, all covered with a beautiful supply of pulp wood, and as stated before in this article, with proper handling this will furnish all the wood that this mill can possibly use up for a long time to come.

Bogalusa Paper Company

The next point I visited was at Bogalusa, La. About eighteen years ago, there was nothing there except some saw mills that were being started with the men living in tents. Today there is a thriving little city of 18,000 inhabitants, all built around the great plants of the Southern Lumber Company, of which the Bogalusa Paper Company is a subsidiary. The moving spirit in all of these enterprises is W. H. Sullivan, vice-president and general manager of the Southern Lumber Company and vice-president of the

Bogalusa Paper Company. R. H. Laftman is general manager of the paper company. The combined interests of all of these organizations is so vast, however, to be appalling, and a trip through these tremendous lumber mills is one of the most interesting sights that I have ever had the pleasure of taking.

Many stories have been given out and written about the southern mule—particularly during the war many of these stories were going the rounds—but I found one big member of this species at Bogalusa that has caused many a smile when thinking of him. Most of us do not give the ordinary mule credit for having very much sense, but I came across this fellow in going around through the paper mill and lumber company's plant. He attracted my attention, because he looked as though he was half asleep, and with his ears laying back sufficiently to make me believe that he would like to grab someone as they passed by, when the gentleman who was showing us through took out his watch and said that in about five minutes from that time, the mule would not do any more pulling until he had had his oats. The watch marked 11:25 o'clock, and the regular time for this mule to have his oats was 11:30 o'clock. They do not attempt to make these mules pull a load after 11:30 o'clock until they have had their feed, because they will refuse to do any pulling, and in this manner indicate they have more sense than some people.

The story was told us of how, when a number of cars were put behind this pair of mules, and they went into the collar to start the load, if the load did not start when they made the first attempt, this mule would look around at the load as much as to say to the driver, "Unless you take off some of the load, there will not be any pulling," and it is always necessary to relieve the load and for the mule to know it, before he will do any more pulling, and when this is done he will go ahead with his work. Possibly these fellows have more brains than we give them credit for.

The Bogalusa Paper Company is not an exactly new concern, having had a board mill there for a number of years, but the new Kraft mill has recently been built. The board mill is equipped with one 112 and one 118-inch Black-Clawson Company cylinder machines, one large breaker beater, furnished by Shartle Brothers Machine Company, and eighteen 1,500-lb. beaters, furnished by the Valley Iron Works Company, of Appleton, Wis.

The new Kraft mill is equipped with one 144-inch trim Black-Clawson Fourdrinier, fully equipped with ball and roller bearings. This mill, like the one at Monroe, has been built so the side of the machine room can be taken out and extended for another machine. The Jordan engines were all furnished by the Shartle Brothers' Machine Company, and the beating engines by the Dilts Machine Company, of Fulton, N. Y.

The pulp mill has a Carthage chipper, evaporator furnished by Ernest Scott & Co., of Fall River, Mass., and one by the Swenson Evaporator Company, of Chicago. A Paulson barking drum, incinerators, disc evaporators and eight digesters were furnished by

A sight to make one happy. The nursery of the Bogalusa Paper Co., Bogalusa, La. Enough small pine trees to reforest 5,000 acres

the Manitowoc Engineering Works, of Manitowoc, Wis., as well as twelve diffusers. The Walsh & Weidener Company, of Chattanooga, Tenn., furnished twelve 250 H. P. boilers for the old plant, while the Casey-Hedges Company furnished three big vertical water tube boilers for the new plant. The General Electric Company furnished the large turbine, while all of the electrical equipment was furnished by Crocker-Wheeler Company. The high speed engine was furnished by the Chuse Engine Company, of Mattoon, Illinois.

One of the most interesting sights that I saw at Bogalusa or anywhere on my trip was the nursery,

Beater room in the new mill of the Bogalusa Paper Co., Inc., Bogalusa, La., showing Dilts beaters

a picture of which is shown with this article. A plot of ground of several acres was prepared last April and seeds of short leaf pine were planted. Today there are enough small short leaf pine trees in this plot of ground to reforest five thousand acres. It is the intention of this company to transplant all of these young trees and then start another batch and keep this going, and as I have stated in this article, these little trees will produce big trees around about twelve inches in diameter in twelve to fourteen years, and it can be seen just where the supply of wood is coming from for this company, as they have tremendous acreage of cutover land. I believe their plan is, within a reasonable number of years, to remove only part of the trees and allow the rest of it to stand for a larger growth.

We hear and read a great deal about reforestation and what some people intend to do, but here is a concrete example of what this company is doing, and it made me happy indeed to see it.

It might be mentioned right here that until recently things were somewhat lax in the South in reference to laws pertaining to fire protection, and I was very sorry to note in great areas that I traveled over recently, that fires had swept over most of this during the past summer. This was possibly the driest summer that has been known in the southern states for the last forty or fifty years and the forest fires took advantage of this. In talking to prominent men in different states, I found that some of the states had not advanced very much in connection with fire protection or advocated very strongly the idea of reforestation, but I believe both Louisiana and Alabama are further advanced than most of the other states in this connection, and I am sure that men in these states will soon see the real necessity for proper fire prevention and its control, and also the value of some basis for general reforestation in the lands that are not adapted to much else than growing timber. Men in these southern states have a wonderful opportunity to do something, not only for themselves and for the present generation, but for generations to come, and surely this is as big a job as any man would want to have.

It was a sad sight indeed to travel over vast areas in the southern states and see that fires had swept over these lands, and where one could see thousands and millions of young trees coming up, which in a few years would be real trees for either lumber or pulp wood, that these fires extinguished the life out of these small young trees and most of them will be no more.

There is enough land in this southern territory that has been cut over and is not being used for anything else, to supply all the wood that would be needed for paper manufacturing, and possibly a lot of other uses, in the United States from now until kingdom come, if proper reforesting methods were put in vogue and proper fire prevention efforts were put forth.

Among the other equipment in the Bogalusa Paper Company's new mill are two 130-inch Wood's machines and a wet machine built by the Glens Falls Machine Company, Glens Falls, New York; Black-Clawson triplex stock pumps; Shartle Brothers Machine Company's Miami Jordans; Bird screens, manufactured by the Bird Machine Company, and Voith high pressure stock inlets, built by the Valley Iron Works, of Appleton, Wis.

The calender stack on the end of the big Black-Clawson machine was furnished by the Farrel Foundry and Machine Company, Ansonia, Conn., as was true of all the other machines described in this article. The big paper machine is equipped with a Harland Engineering Company's electric drive, furnished by the Harland Engineering Company, of Montreal, Canada. The power for this drive is furnished by the 550 K. W. engine generator set, engine being built by the Chuse Engine Company of Mattoon, Ill.

The paper machine is equipped with a vapor absorption system, installed by the Ross Engineering Company, of New York City, as was also the big machine at Monroe. The Roeper Crane and Hoist Company, of Reading, Pa., furnished a hand operated traveling crane, while Pawling and Harnishfeger Company, of Milwaukee, furnished the 3-ton electric

traveling crane to handle the rolls of paper from the reels to the winder.

A similar crane is furnished for carrying rolls of paper to the finishing room, where it is rewound on a Cameron Machine Company's winder or for the big cutter furnished by J. H. Horne and Sons Company, of Lawrence, Mass., equipped with a Maxon Automatic Machinery Company's counter and layboy. There has also been installed a Lobdell roll grinder, and a knife grinder built by the Machinery Company of America.

In a big room adjoining the machine room there are thirty-six bag making machines. This now occupies the room which will eventually be used as a finishing room by the mill and new quarters erected for the bag department.

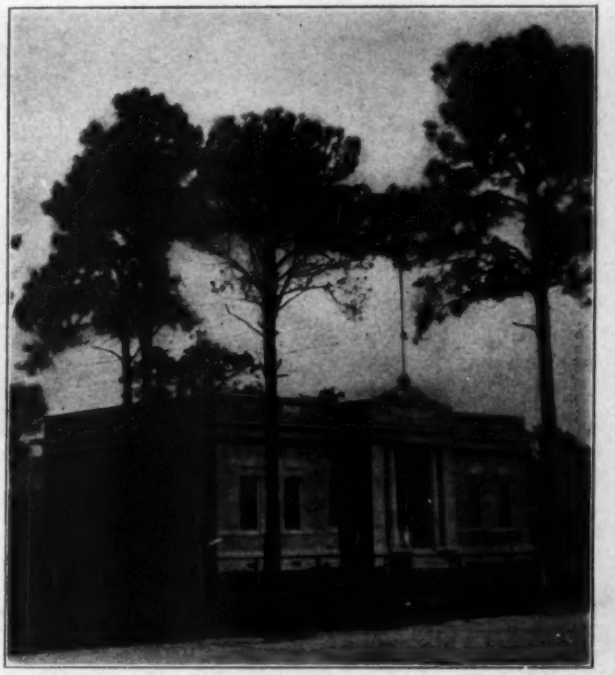
I. J. Witham is superintendent of the new Kraft mill and L. S. Dixon is general superintendent of the Bogalusa mills.

Southern Paper Mills

The last of this quartette of fine, new, Kraft mills that I visited was the Southern Paper Mills, at Moss Point, Miss., and right here I might point out the variety of fuels that are used in these four big mills situated in different parts of the south. At Monroe and Bastrop they use gas and will have electric power at the latter. At Bogalusa they do not use any coal, but only use refuse from the saw mills, but at Moss Point they use oil. This comes from the Louisiana fields and is barged to the mill, which is situated on an inlet which extends up from the Gulf of Mexico. This plant also is not a new one, as a mill has been there for some years, but the big Kraft mill is a new addition to the property.

E. H. Mayo is the guiding genius for this organization, and if I am not mistaken, Mr. Mayo was the original Kraft man of the South. Quite a number of years ago he went with the Yellow Pine Paper Mills, at Orange, Tex., and was manager there for a number of years, and was succeeded by Mr. Holmes, now of Monroe. Mr. Mayo went from Orange to Moss Point and has built up a big organization and a tremendously fine property here.

I mentioned in the early part of this article that a number of men were the real pioneers of the New South as far as the Kraft paper making industry is concerned. The story of these men has been mostly told and this quartette is composed of Mr. Mayo, of



Office building of the Southern Paper Co., Moss Point, Miss.

Moss Point; Mr. Sullivan, of Bogalusa; Mr. Cullen, of Bastrop, and Mr. Holmes, of Monroe. There are a number of others, of course, that have helped in this general up-building, but all of these men have exhibited a great ability and considerable foresight, and have done things so that now the New South is a reality, and we take off our hats to these men and others who have blazed the way.

Rice, Barton and Fales, of Worcester, Mass., built

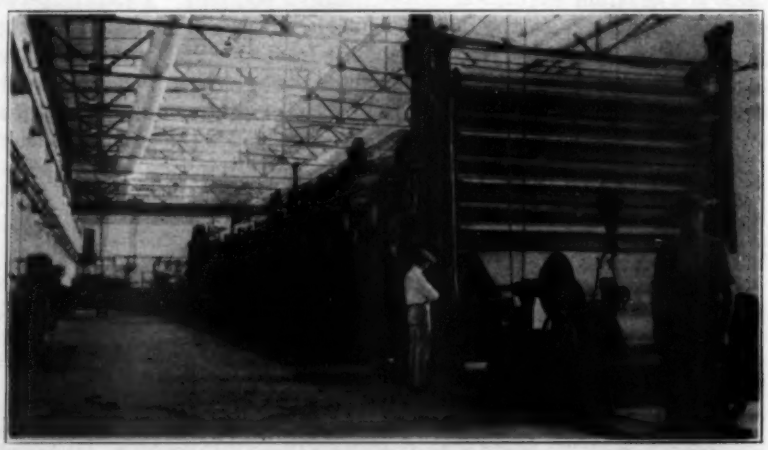
Plant of the Southern Paper Co., Moss Point, Miss.

the 168-inch Fourdrinier machine which was recently installed in this mill at Moss Point, and the General Electric Company furnished the electrical drive. This machine, like all of the others mentioned, is equipped with ball and roller bearings wherever possible. Other equipment in this new mill is four new majestic Jordans built by Shartle Brothers Machine Company, while with considerable changing around it was only necessary to buy one additional beating engine, which was furnished by E. D. Jones & Sons Company, of Pittsfield, Mass. The same company furnished a beater for broke, which has a Griley-Unkle Engineering Company's continuous beater attachment. A large J. H. Horne & Sons Company triplex cutter, equipped with Erie layboy and counter, furnished by the Maxson Automatic Machinery Company, of Westerly, R. I., was installed.

General Electric sectional paper machine drive, in Southern Paper Co.'s mill, Moss Point, Miss.

It is generally known that this plant is controlled by foreign interests, and it was a little strange to see a large 6,000 K. W. turbine installed by the Parsons Company, of England. This is a wonderfully fine prime mover. The great trouble with it is that it is pretty far away from its home base and it is hard to secure parts.

Four 1,000 H. P. boilers are installed to burn oil, which were furnished by the Badenhausen Corporation, of Philadelphia. New equipment installed in the pulp mill consists of two Carthage Machine Company's chippers; Ryther and Pringle Company, of Carthage, N. Y., furnished the chip screens. W. M. Kellogg Company, of New York, furnished the digesters for the new mill, and another additional one is to be installed. The Walsh and Wiedener Company, of Chattanooga, Tenn., furnished nine diffusers. Ernest Scott & Co., of Fall River, Mass., furnished the four effect evaporator, while the Zaremba Company, of Buffalo, New York, furnished a three-effect evaporator. Seven new Packer screens were furnished by the Sandy Hill Iron and Brass Works. Bagley and Sewall Company furnished the three wet machines. The Jeffrey Manufacturing Company furnished several kinds of conveyors and double roll crushers.



Rice, Barton & Fales machine in the mill of Southern Paper Co., Moss Point, Miss.

This is a little story of the New South. The South has tremendous possibilities in the field of pulp and paper manufacture, but whether this territory or section of the country is to become a big pulp and paper manufacturing field depends not only on the men in the paper industry but men in authority in the southern states. If these men have sufficient foresight to see that proper laws are passed along the lines of reforestation, fire prevention and those that will be helpful to new industries, this section will no doubt become a tremendous paper-making field.

This New South, however, has only begun. I can today, I believe, put my finger on three or four different points in the South that will soon have big paper making plants, but that is another story. It is a sure thing that the South has arrived and with the right kind of handling, I believe there are big things in store for this section of our country.

When a tree is cut down, it starts to decay. Man would like to keep it a useful material, but has failed about 75 per cent, because that is about the percentage of tree lost in manufacture and improper use, according to the New York State College of Forestry. Fire and insects are serious, but the greatest destroyer is that quiet, stealthy enemy, decay. This loss, figured in money, in fuel wood alone, approximates thirty-five million dollars annually. The loss in decay after the wood has been cut is estimated at 419 million dollars.

New Principles of Paper Mill Ventilation

By S. F. WINNS

THE paper industry, along with other employers of industrial labor, have been impressed with the recent reports of the Government on the role played by poor mill ventilation in an increased labor turnover.

Just to what degree ventilation effects the efficiency of paper mill and paper factory help is clearly brought out in a recent investigation and the results are certainly worthy of close study.

The larger mills have given fairly close attention to this item in management, but the industry offers peculiar problems not found in many other lines. Recent findings, however, present principles that can be regarded even where their practical and complete application are impracticable.

Probably no one point of factory management has had more scientific treatment in recent years than that of ventilation, though the paper industry has not, as a whole, paid a great deal of attention to the matter. While there are a score of ventilating systems on the market, all useful and successful in their way, mill superintendents are arriving at their particular needs through a study of principles, the application of many of which are comparatively inexpensive and hitch up with any ventilating system that may be adopted. A mill without any special ventilating system can be greatly improved in that direction by using a little common sense and getting the most out of the conditions that exist in that particular mill.

It always must be borne in mind that the various patent ventilating systems have been worked out along scientific lines and a confusion regarding their individual merits may easily result. As a matter of fact, each system is designed to attain a certain result under certain conditions, and it becomes a matter of choice for the mill owner, which he will adopt.

It must always be borne in mind that the first principle of keeping the workshop air suitable for operatives is that the condition of the air must be, in some means or other, in the control of the management—in control as to supply, quality and distribution.

The distribution of fresh air to all parts of the plant is a prime requisite.

By merely opening windows we do not get the proper distribution. A cold draft is as bad as poor air, as a rule.

Distribution of air being the prime factor, conditions have to be brought about that will insure such circulation.

Some Systems Used in the Paper Industry

Gravity System.—This system of air control is based on the fact that warm air from radiator or other heating plant rises to the ceiling of the shop, warm air being more buoyant than cold air. As the warm air above cools off it descends. This system is based on the relative difference in weight between cold and warm air.

Exhaust System.—By this system the air is taken from the outside and into the workshop, resulting in a condition of pressure inside of the factory. Openings in the room are provided to permit the exit of the stale air.

Blast System.—This is the fan system. A large fan is placed so that it will blow hot air over heating units up through channels and flues to workshops.

Split System.—By this system direct heating units are placed along outer walls of workshops. A large fan is used in conjunction therewith to insure frequent change of air.

Unit System.—This system provides for a small motor, fan and radiator, enclosed in a steel cabinet, one unit being placed at each window. The air, by this system, is taken through the window from without, blown through the radiator and into the workroom. This system has been the basis of further improvements by a leading manufacturer.

Above is a brief outline of the principal methods of ventilation of interest to the industry.

There are a number of variations and adaptations of them put out under various trade names, but the general principles remain.

Each of these systems either represents an advance over the other or have been found to be suitable for use under certain conditions.

It always has to be remembered that ventilation and shop heating are closely allied, but that they are by no means identical. And it also is important to realize that ventilation, like heating, depends to a great extent upon the temperature and atmospheric conditions outside.

Factory rooms which offer the greatest exposure to cold winds not only offer a more serious heating problem, but also a problem of fresh air diffusion, which, as said before, is the ideal sought by all systems for ventilation. All patent systems have driven for this goal—proper diffusion or circulation of fresh air in the shop and every corner of the shop.

The first impulse of a foreman or superintendent when his shop gets "stuffy" is throw up some windows and let the free air circulate from outside. This is all very well if it is a warm summer day; but if it is a cold wintry day what he really gets is a cold blast of air that may lay out many of his employees with colds or worse.

That is why merely opening windows is NOT ventilation.

Just because air is cold is no sign that it is fresh

and free from impurities. What the industry is in need of for the adequate protection of operatives is fresh warm air in winter, and properly diffused to all parts of the workrooms.

Number of Workers Governs Needs

Whether or not your factory will require one of the more modern and elaborate air conditioning systems or not, depends much upon the number of workers you have in the shops and the number of operatives per room. This is frankly conceded by the leading manufacturers of ventilating apparatus.

Also, the number of doors and windows you have available through which an air supply might come without dangerous drafts. But it also is conceded now that in any workshop where 25 or more persons are employed, some means of air conditioning is necessary and profitable.

The plant operator, of course, is interested in making his shop as pleasant as possible in which to work, but in addition to this insurance against absenteeism, sickness and general efficiency given by some form of practical air conditioning cannot be overlooked.

Production charts in the biggest factory units in the industry tell the tale of increased efficiency where ventilation is adequate as against those cases where it is not.

In Bulletin 207 of the United States Department of Labor, some interesting information is contained regarding the longevity of people engaged in indoor and outdoor pursuits. They certainly apply to the industry pertinently. Here are the figures:

	Tuberculosis	Diseases of heart	Pneumonia	Average age
Office help	%	%	%	Years
Female	42	8	3	26
Male	35	9	7	36
Factory workers				
Female	35	8	4	33
Male	22	12	5	47
Machinists	25	11	7	43
Farmers	9	16	6	58

It will be seen by the above that those who live in fresh air live the longest. But there is the equally important fact in the industry that the daily efficiency of the worker who labors in a fair degree of fresh air is vastly improved, as an examination of production charts will show.

In one factory the increase in production in a perfectly ventilated workroom over a poorly ventilated one was as high as 9 per cent per operative worker over a period of eight months. This increase runs pretty high when spread over 650 employees. Not only that but the quality of work improved and a greater degree of well being was evident among the operators. Absenteeism was reduced from 18 working days per year to 8⅛ per operative in the case of men, from 26½ to 14⅓ in the case of women.

Probably the first indication of poor ventilation noticeable in our workrooms is a drowsiness on the part of operators which certainly decreases their productivity as well as the resultant quality of their output. This condition likewise conduces to accidents and to greater depreciation in machinery. One operator in the middle west recently claimed that the depreciation in machinery through negligence of operatives was 11 per cent in his new and properly heated and ventilated plant than in his old one which had no modern methods of air conditioning at all. This seems rather high and may be due to other causes, such as the natural inclination of the worker to take pains in new and better surroundings.

Figures from the Industry

Just what will proper mill ventilation do, then, for the industry? What will be the result in dollars and cents, in output and increased happiness to the employee?

The following outline was supplied by a superintendent of one of our eastern mills:

A properly ventilated room first increases alertness and physical betterment.

"A corrective of fatigue.

"Increased production.

"Decrease in absenteeism—50 per cent.

Thirty-three and one-third per cent increase in mental efficiency."

It has been especially noticeable, according to this same report, that the frequent "sagging" of operatives in the middle of the afternoons is vastly decreased when a factory is properly heated and the air diffusion is adequate. Every foreman knows what this means. He has found by experience that the production of the average employee sags seriously from three o'clock on to closing time. This is due in part to scarcity of fresh air in the workroom, a room full of employees rapidly using up available oxygen.

Unfortunately, the mere entry into one of our mills isn't enough to tell just how good or bad the air may be, while it is a simple matter to tell.

While the air changes by natural methods in the average home is sufficient without artificial ventilation, it is entirely another matter when you come to a factory workshop in which 50 to 500 persons are required to breathe the air.

The most modern plants in the industry are fitted with the best in modern ventilating plants, but these only serve as a warning to the smaller units where resources have not permitted that the more advanced ideas in ventilation be carried out.

At the same time, it is possible to adopt one of the simpler systems if the benefit of air conditioning is desired.

Water condensing in the ventilators above the paper machine hoods was taken care of in one instance by putting a trough on the inside of the hood with an outlet leading outside.

Pointers for the Engineer

By W. F. SCHAPHORST, M. E.

High Efficiency Does Not Always Pay

SIMPLY because engineers in a New York City power plant have succeeded in making the water in a boiler absorb 90 per cent of the heat originally contained in the coal is no proof that it PAYS to do it. Nor is it a reason why others should do the same. It probably does not pay. The additional first cost of the boilers, economizers, furnace walls, etc., may be so great as to offset the additional efficiency attained. That is, the interest on the additional investment is probably a great deal more than the saving.

For example, an instance was recently brought to my attention where the owner of a paper mill wanted more power. He was running an engine non-condensing and was using the exhaust steam for process work and heating.

Along came a salesman who informed him that he should utilize the exhaust steam in an additional large low-pressure cylinder, and he would thereby obtain 100 h.p. more than he was getting at that time.

The owner followed the salesman's suggestion and bought an outfit which cost $8,000, together with a jet condenser.

He obtained his additional 100 h.p. all right by operating the engine condensing, but he had to use high pressure steam for heating and process work anyway because he needed heat for those purposes. Result: the paper mill from that day began to fail and is not running any more.

Just Gossip?

NOT ONLY is the Power Show useful for exhibiting and demonstrating new power plant equipment, but it also serves as a clearing house of engineering information. I met a great many friends at the last show and was introduced to engineers and others who have a broad knowledge of power plant equipment, and, naturally, we talked about the latest developments.

One of the most remarkable bits of news brought to my ears is a so-called "electrical method of removing and preventing boiler scale." It was not exhibited, but came to me purely through conversational channels, and what I say here I cannot vouch for as being the absolute truth. It is claimed that this method is NOT an invention, but that it was discovered in Czechoslovakia in this way: One boiler in a battery of several boilers in that distant country never contained any scale, whereas all the others required periodic cleaning. They could not understand why this particular boiler should be immune. After much investigating and study they discovered that a leak from an electrical circuit passed through this boiler, and as a result discovered that the absence of scale was due solely to that electrical leak. By passing a current through ALL of the boilers, ALL scaling was stopped.

The news of the discovery spread rapidly from Czechoslovakia to adjoining countries and has just recently come to the United States. Whether or not it is now applied to any boilers in this country I do not know. Whether it is practicable or patentable I do not know, but it is certain that if the method is as simple and good as it sounds we will hear more about it.

Combustion Control

AN EXHIBIT that interested me greatly was an electrical combustion control apparatus demonstrated by the Engineer Company of New York. By means of this device, a single man will be enabled to remain at the switchboard and from that point efficiently control the combustion of an entire battery of boilers. He will have before him a steam flow meter, CO_2 indicator, and all other modern power plant indicating devices, as well as the electrical combustion control levers. With increase or decrease in load, the stoker feed will be correspondingly increased or decreased, the fan speed will be properly adjusted, and at the same time balanced draft will be maintained. The device exhibited was the first one ever built. Not one has yet been installed. Engineers in the paper industry will doubtless be interested in observing future developments. The paper industry, as I have pointed out before in these columns, has always been foremost in adopting new and worthwhile economizing devices.

Lectures vs. Noise

I HAVE previously written articles about unnecessarily noisy exhibits and I wish again to make a protest along that line. I do not like the noisy "traps" devised by some exhibitors to demonstrate their wares. It may be good advertising to make a great noise but I doubt it, because I personally don't like noise. Quietness and smoothness of operation are features of every drive, even when demonstrating, that should never be overlooked. If a thing can be made to work without making a bit of noise, the thing is usually a success. A rattle-trap contrivance, even though only temporary, is abusive to many a man. The noisy part is the thing that first attracts but soon repels.

This was most emphatically brought to my atten-

tion at the Power Show when I went into the conference room to hear a lecture. I did not sit far from the lecturer, yet I could scarcely hear what he said because of the noise from an exhibit that was close to the room. Just why they should allow the noisiest exhibit at the show to be located next to the thinly-walled conference room is beyond my comprehension. The conference room was also used for motion pictures, with which noise, so far as the writer knows, did not interfere. Still, I generally prefer to have my pictures either in quietness or to the proper kind of music.

Paper Making Picture

ONE OF the most interesting motion pictures shown at the Power Show was a two-reel film that was shown by courtesy of the General Electric Company, named "The World's Advance in the Art of Making Paper Mechanically." Possibly this picture has already been seen in various parts of the country, and it may be that many of the readers of the PAPER INDUSTRY have already had the pleasure of seeing it. To the writer it was, indeed, very interesting and instructive. It followed a picture entitled "Thomas A. Edison Visits the General Electric Company Works," in which Edison and Steinmetz were shown together. It so happens that that meeting was the last between these two staunch friends, Edison and Steinmetz.

Air Pockets

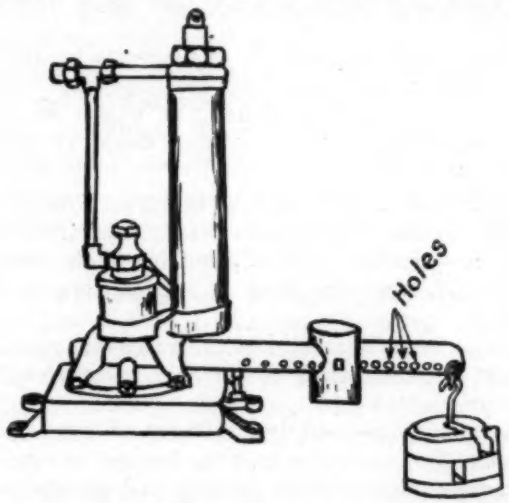
MANY BELT users claim they have discovered that a belt cannot properly pull its load when there are air pockets between it and the pulley. Furthermore, they have discovered that one of the ways in which to exclude the air is to make the belt soft and pliable. Some users insist that the pliability way is the ONLY way to exclude air.

I agree that a belt cannot pull full load when air pockets exist between the belt and pulley surfaces, but I do not agree that the ONLY way to exclude the air is by making the belt soft and pliable. I believe in and always recommend a soft and pliable belt, but there are other ways in which air can be excluded. One way, for instance, which I do not recommend, is to punch a great many holes in the belt so that the air can escape through the belt. This method has often been followed. Another way is to do the opposite and punch or drill holes through the pulley's rim so that the air can escape through the pulley. Another way, and possibly as good a way as any, surely better than punching holes in the belt or pulley, is to groove the pulley. Thus, some pulleys now on the market possess an air groove for this very purpose. I have in mind a pulley with such a groove which was not put there purposely to take care of the air, but it is there just the same. It has been found that it solves the air problem very nicely and is claimed to give increased tractive power.

I would say that in addition to using a grooved pulley, if one keeps his belts in a nice soft and pliable condition with a good belt dressing, conditions are ideal for taking care of the air. Air pockets are then impossible.

Making a Damper Regulator More Delicate

A USER of a damper regulartor made along the lines of the enclosed sketch recently discovered that he could make the device delicate enough for use on vapor heating systems, although it was not originally intended for such systems. By drilling holes along the lever arm, as indicated, the weight at the



extreme right was moved inward, thus really making the lever arm shorter. He found after making this very simple change in design that the regulartor now operates very satisfactorily on exceedingly low pressures.

This is a so-called hydraulically operated damper regulator. The low steam pressure first acts against the diaphragm, which in turn acts against the weighted lever. When the steam pressure is sufficient to raise the weighted lever, a pilot valve which controls a supply and discharge of water is opened, admitting water pressure into the bottom of the motor cylinder. In this way any desired force may be obtained for operating the damper, regardless of the steam pressure. Although steam is the first actuating force this is, nevertheless, a "hydraulically operated" damper regulator and not a steam operated regulator, because it is the water under pressure that does the real work.

The happiness of your life depends upon the character of your thoughts and the Safety of your acts, says the National Safety Council.

Application of Flow Meters to Paper Mills

By D. B. DAVIES
Genl. Supt. Hoberg Paper and Fibre Company

WITH an ever increasing realization of the part played by steam consumption in the cost of manufacturing paper and pulp, there is now a growing interest in steam flow meters. Instead of being regarded as another troublesome instrument to be looked after to satisfy the curiosity of some fool engineer, the steam flow meter is fast becoming the hobby of the manager and superintendent.

Instead of being relegated to some dirty corner, allowed to get out of order, and into disuse as formerly, the steam flow meter is now receiving a great deal of attention and respect, and is given a decent place in which to perform its work.

In many mills, it is now realized that the steam flow meter is filling an important place in reducing cost, and that it deserves the same attention as the paper machine gets. Once the management has realized what enormous savings are made through the use of these instruments, their future use and care in that plant is assured.

In paper and pulp manufacture, the boiler plant in most cases was the first to receive attention, and it was soon realized where installations were made, that the steam flow meter was of great value in reducing steam production cost.

Fuel Value of Wood Room Refuse

Before the advent of the steam flow meter, the burning of wood room refuse was regarded as a necessary evil, but the flow meter showed that considerable steam could be produced from burning wood room refuse. This put the burning of refuse in a new light, and as a consequence the refuse furnace became the object of more attention, and as a result the burning of refuse in some mills at least, has reached a point of high efficiency. There are still some mills, however, where it is not realized that a mill using hemlock to make sulphite can furnish from its wood room refuse enough steam to do its cooking and heating, and have some steam to spare for incidentals. One skeptic when he heard of this performance remarked that many people were fooled by defective flow meters. This may be true sometimes, but in the instance I have in mind the flow meter readings were verified by shutting off the line from the coal fed boilers and leaving the cooking and heating to the refuse boiler. The test was conclusive.

Flow Meters in the Pulp Mill

The use of steam flow meters on the digesters is, I believe, now almost universal, and their value is well understood. I have never known the introduction of flow meter to fail to produce 10 per cent reduction in steam consumption, and have seen instances where the saving reached 30 per cent on the digesters. In cooking practice the instruments do more than record the flow of steam, they are an important factor in working out better cooking methods, and a great aid in improving quality of stock. The amount of steam wasted in blowing off the digesters, as shown by the flow meters, may be of considerable interest.

That the use of steam flow meters on paper machines is of the utmost importance in reducing costs, is now realized in many mills, but even now you will find mills where great care is taken to weigh and check small supplies of comparative insignficance, and a great hubbub is raised because the superintendent has put on another man or two, while the enormous waste in steam consumption on the paper machine is given no thought. This can only be accounted for by lack of knowledge on the part of the management. The proper installation and use of flow meters on machines where none have been used will show possibilities of astonishing savings.

In hot bleaching, the steam flow meter may be a very good paying investment. Frequently bleachers are built without a top or cover to save on construction cost. The stock circulating in contact with the cold atmosphere is cooling. The use of a flow meter will show whether the steam is wasted or not.

Sometimes innocent looking steam consumers in remote parts of the process escape our attention. The steam feed on a saw which apparently was functioning normally proved to be using 150 B. H. P. of steam. This was displaced by an electric motor which took 10 H. P.

The steam used from hose to blow wires is frequently passed up as being of no importance, but the flow meter shows that quite a saving can be made here.

Usually there are steam jets on top of the acid towers, which are intended to be used to remove gases to enable the man to fill the towers. These steam jets become enlarged and consume excessive steam. Furthermore, the men are likely to become careless and leave the jets on after they are no longer needed.

When this is checked up by steam flow meter, and the waste calculated, more care will be taken to train these men in the use of steam.

Constant Guard Against Steam Wastes

The amount of steam used for heating purposes is so great in some localities, that after the flow

meter has told the story, it is found well worth while to revamp the whole system. Certainly the figures revealed will bring about more careful and systematic attention to the heating problem.

In many places a portable steam flow meter will suffice, but in the more important points permanent installation are fully justified in view of the savings made and the ease with which we can drift into wasteful practices.

These are some of the instances where savings can be made by the use of flow meters, and no doubt many other places not mentioned will occur to the reader. Once established under the care of an intelligent man, the steam flow meters act as a constant guard against the wasteful use of a costly article, and the savings made will be most gratifying.

In conclusion, I wish to assure the paper manufacturer who has not made the acquaintance of the steam flow meter that he is overlooking an important weapon in his fight against high cost.

Be it Walla Walla or Washington, Philadelphia or Podunk, Chicago or Council Bluffs; and be it capitalist or carpenter, banker or bootblack, prince or pauper—men are known by the company they keep.

Foreman Training in the Paper Industry

Part II—How to Plan and Lead Foreman Training

By J. K. NOVINS

Author of "A Training Program for the Factory Foreman," "Foreman Training in Practice," "Manual of Practical Training for the Railroad Foreman," etc.

Choosing and Developing Efficient Training Leaders

AS IN the choice of a training program, the matter of choosing and developing a training leader depends on more than one condition, chief of which is the availability of properly trained and innately endowed instructors. We say "instructors," for the man placed in charge of a discussion group, or to develop a lecture program, must exercise certain principles of instruction just as does the instructor who follows certain standardized principles of pedagogy.

With the rapid development of foreman training, great strides have been made in the training of properly equipped class instructors, lecture co-ordinators and group conference leaders. This work has been carried on, in some plants, through the medium of sample conferences staged by the Federal Board for Vocational Education and the respective State Vocational Education Departments; through colleges and universities in various parts of the country, as a result of appropriations made for the purpose by the government; and by conferences of plant executives held periodically in industrial centers, to which the concerns send their respective foremen training leaders.

This series is a manual on the subject of foreman training, and as such is replete with valuable suggestions for the installation of a foreman training course in the paper industry.

Part two contains five chapters, of which this article is the first. "Leading the Foremen's Conference" and "Organizing the Foremen's Conference" will appear in the next number.

The author of this series is available through these columns to answer any inquiries regarding any phase of foreman training on which the reader might wish to be enlightened.

The question is whether an outside man or a man already employed in the plant should be assigned to the work of leading foremen training work. A study of the experiences of several hundred firms reveals the fact that both types are used with varying success. The instruction of foremen at the plants of Champion Coated Paper Company, and Gardner and Harvey Company, is conducted by an outside man, one furnished by the state for the purpose. The foremen of the A. M. Collins Manufacturing Company, and the Dill & Collins Company plants, at Philadelphia, were formerly trained by lecturers engaged by the Philadelphia Industrial Association. Later, conferences of foremen in these two plants were conducted by state educational experts. The work was then undertaken directly by the management, which appointed inside men to conduct the instruction.

One of the large industrial concerns in the midddle west, with branches in several parts of the country, solved the foreman training problem by first bringing in an outside man. This man devised the program, and began the training of the plant's executives to enable them to handle the foremen groups on their own initiative. In this way the foreman training program gradually evolved into an "inside man" proposition.

A concern like the Dennison Manufacturing Company has not had to depend on outside assistance, be-

cause this company maintains an extensive industrial relations department and a research department, with trained men ready to undertake the work independently. However, other concerns are not so fortunately situated, and outside assistance is needed before the training program can develop into an independent plant function.

Whether the training program is directed by an outside or inside man, the problem is the same—how shall he be trained for the job of leading foremen groups. The most important agency for this sort of work is the Federal Board for Vocational Education, with which co-operate the various state vocational education departments. Fortunately, in the pulp and paper industry there exists an organization which has given a great deal of effort in developing foreman training material and methods—The Technical Association of the Pulp and Paper Industry. In this article the writer will discuss the work of the Federal Board for Vocational Education in training foremen group leaders. The work of the Technical Association of the Pulp and Paper Industry will be covered in another article.

Government Training Facilities

When it became evident that foreman training was a pressing need in industry, the Federal Board for Vocational Education, acting under a grant created by the Smith-Hughes Act, secured the services of several industrial education experts to devote their time to study methods of foreman training and to devise effective pedagogy. These experts—J. C. Wright, Charles R. Allen and Frank Cushman—have contributed a great deal to the movement. About three years ago Mr. Wright established close contact between the Federal Board for Vocational Education and The Technical Association of the Pulp and Paper Industry. As the result of special investigations, Mr. Wright then prepared for the association a pamphlet analyzing the various jobs in the paper industry and indicating the courses of training that could be followed to advantage by foremen in paper mills.

The Federal Board for Vocational Education made available its staff of trained men to inaugurate initial foremen conferences in various plants in the paper industry, with the purpose, primarily, of introducing its methods to the plant executives so that these ultimately, would be in a position to conduct conferences on their own accord.

In this way, conferences were conducted at the plants of The A. M. Collins Manufacturing Company, and Dill & Collins Company in Philadelphia; The Bemis Bag Company, Seattle, Washington; Hammermill Paper Company, Erie, Pa.; Champion Fibre Company, Canton, N. C.; S. D. Warren Company, Cumberland Mills, Me.; Nekoosa-Edwards Paper Company, Port Edwards, Wis.; Marathon Paper Mills Company, Rothschild, Wis.; Crown Willamette Paper Company, Portland, Ore.; Inland Empire Paper Company, Millwood, Washington; and the Champion Coated Paper Company and the Gardner and Harvey plants in Ohio. These conferences were directed either by representatives of the Federal Board, or by representatives of the respective state vocational education boards co-operating with the Federal Board.

Network of Instructor Training

In addition to trying out the conferences with groups of foremen in the individual plants, the Federal Board for Vocational Education conducted conferences with the higher plant executives and with state educational supervisors and vocational education teachers of schools and colleges, on the supposition that these men would ultimately undertake the job of training the bulk of foremen training leaders for the individual plants. In 1921, the Federal Board for Vocational Education held a conference of state supervisors, state teacher trainers and representatives from industry at Minneapolis, Minn. This was followed by a similar conference next year. It is interesting to note that Mr. R. W. Jenkins, who is at present conducting the foremen groups at the Champion Coated Paper Company, and Gardner & Harvey Company, received his first training in this conference.

In 1922, a similar conference was held in Harrisburg, Pa., under the auspices of the Bureau of Vocational Education of the Pennsylvania State Department of Public Instruction. Active at this conference were Mr. Morris Harrison, Director of Personnel of the Hammermill Paper Company, and Mr. C. B. Miller, Assistant Director of Personnel of the same company; Mr. George E. Jeffrey, Jr., Service and Employment Manager of the Dill and Collins Company, Philadelphia, Pa.; and Mr. Albert Klufkee, Employment Manager of the A. M. Collins Manufacturing Company, Philadelphia, Pa. At this conference, as well as at the conferences held in Minneapolis, the industrial teachers and business executives exchanged experiences in foreman training and revaluated training methods.

Similar conferences have been held regularly in other sections of the country and this year a conference was held in Baltimore, under the auspices of the University of Maryland, in co-operation with the federal, state and city departments of vocational education. In Portland, Oregon, a special conference was called by the State Board for Vocational Education to interest the executives of the paper plants there in the methods of conducting foreman training work. Those who attended the conference were: Mr. E. R. Brown, Mill Inspector and House Organ Editor, Crown Willamette Paper Company, Portland, Oregon; Mr. Frank Killien, Assistant Superintendent, Everett Pulp and Paper Company, Everett, Washington; Mr. E. H. Post, Assistant Mill Manager, Crown Willamette Paper Company, Casas, Washington; Mr. J. A. Ream, Assistant Mill Manager, Crown Willamette Paper Company, West Linn, Oregon; Mr. John

T. Van Buecken, Shift Boss, Machine Room, Inland Empire Paper Company, Mill Wood, Washington; Mr. A. R. Nichols, State Supervisor of Industrial Education, Corvallis, Oregon; and Mr. G. H. Jensen, State Supervisor of Industrial Education, Olympia, Washington. The conference was led by Mr. H. A. Tiemann, agent of the Federal Board for Vocational Education.

Under the provisions of the vocational education act, the Federal Board for Vocational Education is empowered to appropriate certain sums of money for the training of foremen in the different states, provided similar sums of money are appropriated for the same purpose by the respective states. Hence, the foremen training in most states is under the direct supervision of the state educational supervisors, and the training of foremen leaders falls chiefly to the state colleges in the states co-operating with the federal government.

Training Executives in the Plant

Along with the foremen conferences inaugurated in plants by the Federal Board for Vocational Education, and by the respective state vocational education departments, conferences are often arranged with the higher plant executives, such as superintendents and department heads, with the purpose of instructing them in the art of conducting foremen training conferences. Usually these conferences are held simultaneously with the foremen conferences in the same plant. The department heads are given an opportunity to conduct a conference under the guidance of a trained educator. In many cases these executives are encouraged to visit foremen conferences in other plants, so they will see how the work is conducted. At the conferences conducted in Minneapolis and Harrisburg specimen conferences were staged. The conference held in Portland, Oregon, was conducted like other conferences for foremen, the same material being covered and the same methods used.

Mr. Frank Cushman, Chief of the Industrial Education Service of the Federal Board for Vocational Education, relates how, after a demonstration conference was staged in one plant in the middle-west, the company then declared its intention to place the foremen group in charge of a company man. The work was accordingly carried out by the company man in the manner of the primary conference, and was completed under the personal guidance of Mr. Cushman.

State Educational Facilities

The executive who desires to put on foreman training in his plant should first find out what facilities for such education exist in the state. If the state education department employs one or more experts engaged in putting on foremen conferences in individual plants, he should make inquiries as to the possibility of putting on such a conference, or series of conferences in his plant. While such a conference will serve the purpose of training the plant's foremen it will also result in creating interest among the plant's executives for the establishment of a definite and permanent program for foreman training in the plant. The chances are that among the several foremen and other executives attending such conferences will be developed the proper material to carry on future training in the plant.

The state will be glad to co-operate, without any charge to the concern. Those states engaged in the work are granted special appropriations by the state legislatures.

In some states, however, the work is carried on by a state college acting in co-operation with the State Vocational Education Department and the Federal Board for Vocational Education. The college usually selects a trained educator for the work, who is expert in training future teachers and group leaders. Among the states where foremen training activities are carried out through the state colleges and universities are: Tennessee, at the University of Tennessee; Maryland, University of Maryland; Iowa, Iowa State University; Indiana, formerly at Indiana University, but now at Purdue University; Wisconsin, at the University of Wisconsin; Texas, at the Agricultural and Mechanical College of Texas.

In other states the work is carried on both by state colleges and the state vocational education departments. Thus, in Pennsylvania the work is carried on by The University of Pittsburgh and the Pennsylvania State College, but conferences have been led by Dr. F. T. Struck, Assistant Director of Vocational Education for the state. In Michigan the work is carried on through the University of Michigan; in Ohio both by the Ohio State University and by the Ohio State Board of Education.

In other states the work is generally conducted directly by the state educational officers. Among these are Virginia, Washington, Idaho, Utah, Colorado, New Jersey, New York, Rhode Island, Kentucky, Mississippi, Alabama, North Carolina and Nebraska. In New York and Massachusetts the state officers confine their activities solely to teacher training courses for groups of supervisors selected for local industries. In other articles the writer will take up in detail the training facilities offered by these states.

What Does Your Groundwood Cost?

By ADOLPH F. MEYER
Consulting Engineer, Minneapolis, Minnesota

THE accounting department of practically every mill can give some answer to this question. In many instances, however, the answer will contain "fact" and "fiction" in the reverse proportion that groundwood and sulphite are commonly used in newsprint.

Economy in production means essentially wise ex-

penditures rather than merely reduced expenditures. To be able to spend wisely, one must base his action on knowledge derived from records. I am not advocating records for their own sake, but merely as the basis for intelligent action—to make one dollar grow rapidly into two and not merely to get "a new dollar for an old one."

Wherever there is electrical machinery, one finds many measuring instruments to guide the operator, because records are considered essential, and both indicating and recording instruments are installed with the machinery. The opposite situation normally prevails in the groundwood mill. One usually finds merely a few dilapidated pressure gages. Yet how can groundwood costs be determined in the individual mill without reasonably complete records, and how can costs from different mills be compared?

Among the necessary data which must be secured are: amount and kind of pulpwood used, loss in preparation, water and power used in grinding, pressure, speed, temperature, burr used, and quantity and quality of pulp produced. To be comparable, records of these factors must be made according to some universally accepted standard of measurement, otherwise the one mill making a given quality of output with a reported 60 horsepower per ton may actually be grinding less economically than another mill reported to use 70 horsepower per ton.

In succeeding articles I shall attempt to outline in more detail the records which must form the basis for a reasonably correct answer to the question of groundwood costs.

Waste in the Sales End

By B. T. McBAIN

THERE is usually some discord, more or less, between the manufacturing end of all paper mills and the sales end. One must produce the product at a cost which will enable the other to give it away at a profit, which cannot be done.

In early days it seems there used to be more common sense displayed in the sale of a mill's product than is sometimes shown today.

When newsprint was sold at $30.00 per ton, many orders were turned one way or the other on a difference in price of a few cents per ton. For instance, I have seen a contract made at $29.75 per ton net, when the next best price was $30.00 per ton. As the price went up prior to and during the war and reached all kinds of heights, $150.00 and even $200.00 per ton, the amount of difference in price between salesmen seemed also to double and treble, so that today, when a price is high, the next figure lower seems to be 25c per 100 lbs. in most cases instead of the old 25c per ton.

Not long ago, when Kraft paper was bringing $7.00 per 100 lbs., some well informed southern sales organization cut the price to $6.00 per 100 lbs., followed immediately by the older mills to a like figure, and then the southern organization went down to 5c and even lower until no one was making a cent out of that grade of paper.

What did the paper houses think? They had been told when they wanted a reduction from 7c to 6¾c that it wasn't in the cards; yet all at once, almost, the whole profit and part of the cost was lopped off to try to make a market on one part and to keep the market on the other part.

But these are not the only wastes in the sales departments of many plants. "An order is an order" to many salesmen, and some of them cannot seem to get the facts imbedded in their ivory domes.

Paper machines must have orders for 100% trim and 100% of the time for qualities they can make in order to be 100% efficient. Just in proportion to which the orders passed to the machine bear to this theoretical point will the machine's product and costs bear.

If a machine can make a ton an hour on a certain grade, and it takes an hour to wash up after making an order to get ready for and start the next order, the efficiency is cut down in proportion and the cost increased.

Many salesmen have accepted orders for one ton or less, figuring it would be made with other orders for like grades, which, however, never materialized. If that ton is made alone in one hour, an hour wasted washing up and changing to the next order, that ton order cost two hours' time, or 100% more for all conversion and overhead costs than it should, cutting a paper profit on that order to a very great loss in proportion or percentage.

"But," says the salesman, "I had to take that ton order to get the other 20 tons."

On looking up many a 20-ton order, the profit is so small today that it would have been better had he lost the whole order, because the loss on the one ton nearly wiped out the profit on the 20.

Again, there is a waste in the sales end, "guessing what a price should be on a specialty."

Few mills know what their various grades and colors cost. They have an average cost at the end of the month and on the average they may show a profit. However, few mills can produce 20-lb. or even 25-lb. paper as cheaply as the heavier weights, but will name the same price for 25-lb. as for 50-lb., figuring that on the average they will show a profit. But orders for 25-lb. are on the increase until some months there is 25% of 25-lb. paper produced, and the average cost is above the selling price.

The price of 25-lb. paper should be in proportion to its cost, and until the sales organizations get this figure they will be facing a loss in most mills.

This completes the twelve articles I promised a year ago to write under this heading for the PAPER INDUSTRY.

If I have helped anyone I am amply repaid.

Editorial Comment

By WILLIAM SIBLEY

What Is Coming

IN THE November and December issue of The PAPER INDUSTRY, we told, in brief, of some of the far-reaching developments and improvements that have been made in other fields during recent months. Everything cited in those editorials were facts, we speaking only of those things which had been accomplished. Such a tabulation could be continued almost without end, for the observer of present-day industrial and scientific trends sees countless inventions and discoveries, each of which is interesting as a fact and far-reaching in effect.

We wish now to tell of some of the developments which are not yet perfected but which are coming—and coming fast. We tell of these future developments in all sincerity for we believe a knowledge of them will better equip us to successfully visualize coming changes.

It is only human nature to view tomorrow by what we know and do today. Our fore-sight is never as good as our hind-sight, and too often we believe that by governing our steps by past experience we are performing wisely. In countless ways that trait in human nature has cost us untold millions. It has slowed progress and stifled developments. Recognition of what is coming, therefore, should fortify us against a false conservatism and provide incentive for individual expansion.

Not long hence aerial transportation will have become a great basic industry. Air-ships will be carrying Texas hides and Montana wool to the industrial mills of New England—without a man on them. They will be guided entirely by radio, dispatched by one station and caught by another. We will have aerial taxi service, the "stands" being on roofs or elevated platforms. Standard Pullmans will shortly be equipped with wings and we will fly to our destination in one-tenth the time now necessary with rail transportation. We will be able to leave the terminal on a regularly scheduled train, drawn to an aerdrome on the outskirts of towns, when our car will be divested of its rail trucks and slide into position on an airplane chassis, to which it will be bolted. Thus in a few minutes our rail car will have become an air ship and in a few hours we will be in California, Calais, or Hawaii.

Many of us now drive to points 40 to 100 miles distant to play golf, take dinner or spend the week-end. This would have been utterly impossible for our grandfathers at our age for they had access to nothing more speedy than the horse and buggy. Many of us will live to see the time when our children will say: "I know a peachy little cafe in Honolulu. Let's go there for dinner tomorrow night." Whereupon they will make the round trip with no more effort in time or energy than we now expend in motoring to and from our particular pleasure resorts, or than grandfather spent in driving "Molly" to the barn-dance twelve miles away. Yet some say we are living in a fast, "high-powered" age!

Today there are 530 radio broadcasting stations, serving the country with market reports, news of the day, sermons, music—and much jazz. This will all be changed shortly. Probably in just a few years we will not have 530 stations, but one super-station. This will serve the country by sending out inaudible short waves to be caught by branch stations which will then broadcast on audible wave lengths. Political, economic and social intercourse across the Pacific or Atlantic will be commonplace and the transmission of motion pictures by radio will be a part of our evening's entertainment—made possible on a fee system such as the [illegible]phone people now employ.

Since its inception, the cost of producing electricity, or artificial light, has steadily decreased. This progress in cost reduction will continue so that electricity will one day be on a cost basis comparable to our water supply—for the asking, or nearly so. This means that our automobiles will be largely electric in the future and that our friends will be as willing to recharge the batteries (while playing bridge of an evening) as they are now ready and willing to fill the radiator. The reduction in cost for artificial light may also mean a change in our architecture, for in many places it will be found economical to erect buildings without windows. Also, they are learning a great deal about leakage in electric transmission lines and are developing devices to minimize the loss we now endure. Soon they will be transmitting electric power by radio, which means that the power of Niagara Falls or some other natural resource now inaccessible will be released to run sugar refineries in Cuba, woolen mills in Montana or pump irrigation water in the Sahara Desert.

During the past twenty years we have witnessed tremendous increases in vehicular traffic. Since 1915 our motor truck traffic has increased itself 100 times. If the same increase containues for another ten years we will have over 20 million trucks in the United States. This traffic will make necessary roads and highways capable of withstanding a speed and weight in double ratio to present-day loads. We will soon have electric trucks and trailers for the transporta-

—— on Timely Subjects

tion of freight, each trailer equipped with air brakes easy to control from the single operator. The city of tomorrow will be with streets on three levels; one level for pedestrians, one for vehicular traffic and one for rail transportation. (Incidentally, this idea was advanced over 800 years ago.) Parking space will be underneath buildings as well as in open spaces.

This is not dream-stuff, nor are we trying to imitate Jules Verne. We are just trying to set you right on what is coming—rapidly. A few moments of earnest thought, with pencil and paper, will prove there is nothing imaginary in this discussion.

In 1950 the population of the United States will, in all probability, be in excess of 150,000,000. By 1930—in five years—there will be over 25,000,000 people in the metropolitan area of New York City and over four million of them will depend entirely upon suburban service. The transit commission of that city estimates that by 1950 at least 7,000,000 people will be forced to use suburban service twice daily. By reason of the St. Lawrence waterway, the canals to make the gulf accessible, the aerial and motor transportation development, Chicago will surpass New York City in population and commercial activity within the next fifty years. By that time, it is estimated, the Chicago district will house over 40,000,000 people.

One cannot contemplate such increases in population or such changes in commercial activity without realizing that with them must come added responsibilities and the necessity for far-reaching improvements. The great trouble with many of us is that we so wrap ourselves in our own little tiny world that we lose sight of the progress of the world—fail to keep in step with the trend of times. We know too little of what the other fellow is doing.

Someone has said "Where there is no vision, people perish." That is as true with an individual, corporation or an industry as it is with a nation. One industry and its welfare affects another. Every industry is directly related to every other. There is a bond of relationship in everything industrial which leaves no one industry wholly different from all others.

There is a great need for industrial co-operation. For the benefit of our progress we should keep our minds open to the developments and progress in other fields. In the past, changes have come upon us slowly enough to permit of easy adjustment. Now changes come rapidly, and unless we keep abreast of the times we will find ourselves eating the dust of the chap who has.

Refusing to See Salesman Is Overlooking a Rich Source of Ideas

HOW many salesmen called upon you last year? One hundred? If so, you had one hundred opportunities to enrich yourself with business information—free.

Generally speaking, ideas cost a great deal of money, yet without them we make no progress. Sound business information is usually to be found only at conventions, associations, or other sources that prove more or less expensive. But such information is a business necessity.

If you could travel, as salesmen do, visiting plant superintendents and engineers in distant cities, you could gather an equally rich and varied fund of practical knowledge. But you cannot afford the time. Therefore, it pays you to keep your ears open and your mood receptive when a salesman calls.

You may not need his goods, but you need all the information you can get out of him. Ask him questions. Listen to him. If you treat salesmen courteously you will learn many practical ideas.

Teaching Rather Than Educating

THERE was once a New York mother who enunciated a philosophy of education, interesting if nothing more. Her youthful offspring had been returned by the instructor with a request that he be bathed. The mother penned a reply as follows: "Willie ain't no rose. Larn him—don't smell him."

Mental gymnastics was all this mother desired from the school. That school might make her child a better citizen, a more pleasant companion, a more useful man, never entered her head.

This mother's conception of school function was not so foreign to universal opinion as expressed and practiced forty years ago, as might be imagined. Only in the last few years have we realized the futility of teaching subjects irrelavent to general commercial pursuits and have adopted in their stead such courses as domestic science and manual training.

School, to be most resultful and helpful, should be practical. The mere transfer of knowledge from a book to a boy's head is teaching. To combine equally, with book knowledge, the arts and sciences taught by the boy's and girl's organizations, the apprenticeships and other practical resourceful information, is education. The tendency toward education during the past few years has been most gratifying.

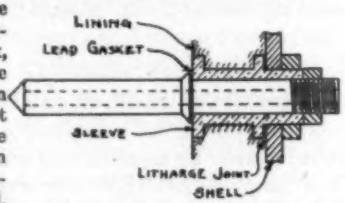
Practical Helps for the Mill Man

Keeping Steady Vacuum on Suction Boxes

AN UNSTEADY vacuum on the suction boxes caused by surging of the water in the pipe line, pulsation of the pumps, etc., often causes trouble when the wire is pulled against the suction box for a second and then loosened. Besides the wearing on the wire and boxes, this is not without effect on the sheet of paper. This trouble has been remedied effectively in one instance by attaching a 2-inch vent line with a globe valve at the end with the stem running free, so that the inrushing of air will lift the disk. Enough weight is put on the stem to keep the valve nearly closed normally. When the vacuum is increased momentarily, the valve opens, allowing air to rush in to compensate for the increase in vacuum. This has decreased the fluctuation from about four or five pounds to less than one pound.

Thermometer Pocket for Sulphite Digester

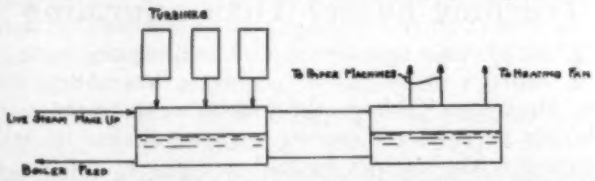
THE time necessary to change the thermometer pocket on a sulphite digester has been reduced from about eight hours to less than a half hour by the use of the one shown in the sketch. In the old type the pocket itself was fastened in the brickwork, making it necessary to take this out in changing. In the new type, the pocket is held in a sleeve set in the brick lining and held in place by a nut on the outside of the digester shell.



All that is necessary to change the pocket is to remove the nut on the outside and slide the pocket through the sleeve to the inside of the digester.

Low Pressure Steam Accumulator

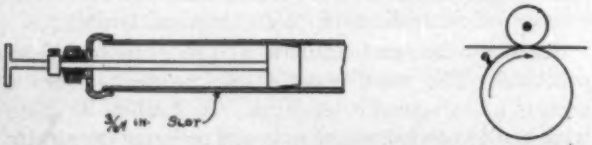
IN MANY mills, as soon as a paper machine is shut down, there is a considerable loss in the amount of steam blown into the air before the system can be checked. This has been partially overcome in one mill by the use of a low-pressure



accumulator which takes the exhaust from the turbines, the machine being electrically driven, and in turn supplying the paper machine dryers with steam. The accumulator consists of two tanks 7½ feet in diameter and 38 feet long, covered with asbestos. This supplies steam at a pressure of 16 pounds to the machine dryers and returns the condensate to the boilers. With this arrangement one machine can be shut down 12 minutes or two machines 6 minutes without shutting down the turbines and blowing steam into the air.

Water Deckle for Cylinder Mould

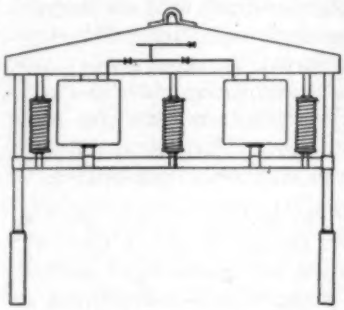
TO ELIMINATE any unnecessary trimming of the sheet and to line up the deckles on the different cylinders more easily, the water deckle shown in the sketch has been used



with good results. The 2-inch shower pipe with a 3/64-inch slot is placed so that it washes the edge of the sheet from the cylinder mould back into the vat. The plug is set for the desired width of sheet and may easily be adjusted to any other desired alignment.

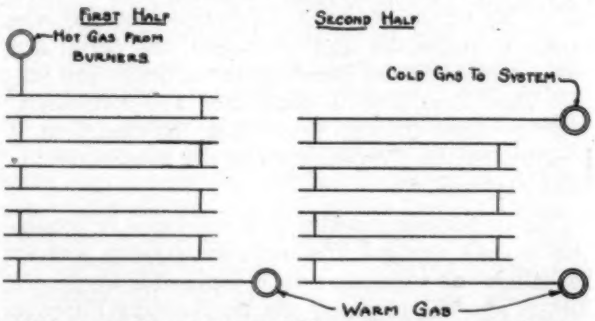
Filling Beater Rolls

IN MANY mills, particularly boxboard, where the beater rolls need rather frequent filling, the apparatus shown may be used to good advantage to shorten the operation and make it easier. The beater roll is held by the yoke with rings attached to each end to carry the journals. Two hydraulic cylinders are attached to the yoke, which operate a cross bar. When the pressure is turned on the bar is pressed down, forcing the filling into place. When the pressure is released, the springs pull the bar back into position. A portable 1½x4-inch duplex pump, mounted on a truck with the motor attached, furnishes the 250 lbs. pressure required. Ordinarily, the filling is driven down into place with a sledge, which, besides being a tedious job, often splits the wood, making it difficult to put in evenly. With the hydraulic apparatus a roll may be filled in one hour, formerly an all-day job.



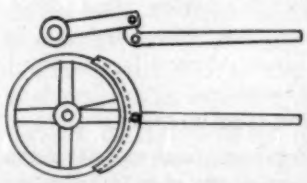
Old Type Gas Cooler Made More Efficient

BY REARRANGING an old type gas cooler as shown, the gas temperature was reduced from 32° C. to 21° C. in the summer, and from 12° C. to 6° C. in the winter, which is a large factor in maintaining the desired strength of acid. The cooler box was divided in two parts by a partition in the



middle and cold water turned into both parts. The hot gas header was shortened so that the hot gas is taken into the first section of the cooler through the first half of the pipes that were formerly used. The gas coming from the first section, partly cooled, enters the header that was formerly the cold gas line and enters the second section at the bottom. It then passed up through the second section and is taken out at the top through the new cold gas header.

Lever for Hand Wheel



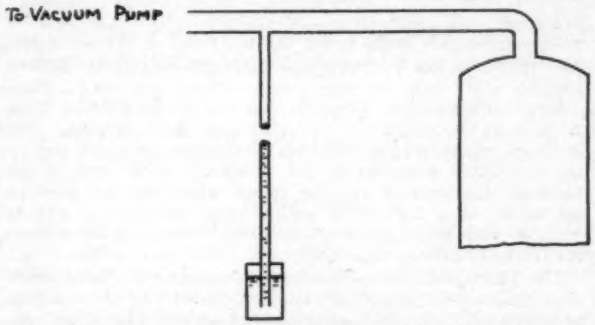
IN THE sketch is shown a handle which may be attached to an ordinary handwheel to give the added leverage sometimes desirable. Pulling the handle in one direction forces the shoe against the rim, giving a firm hold, which may be quickly loosened to be moved to a new position.

Hot Water from Gas Coolers Used in Hot Pond

HOT water from the gas coolers in the acid plant has been used economically in the hot pond to soak the wood before barking, in at least one sulphite mill. It is estimated that the substitution of the water from this source for steam, which was formerly used, has saved $1 per ton of pulp.

Lime Water Trap for Acid Plant Vacuum Line

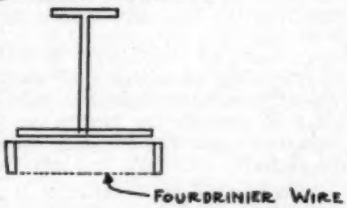
MANY sulphite acid plants using milk of lime absorption systems have trouble occasionally when the top compartment fills up with lime water, which is drawn over into the



vacuum pumps, coating the cylinders and causing trouble generally. By placing a water trap in the vacuum line, the lime water is caught before it reaches the pumps. The water seal serves another purpose in limiting the vacuum. If the system becomes plugged for any reason, the danger of the lead pipes collapsing is lessened.

Sampling Beater Stock

THE simple device shown in the sketch is used by a mill laboratory to sample beater stock for matching colors, and has been much in demand by the beatermen. The bottom of the brass ring is covered with Fourdrinier wire. This is filled with stock, which is pressed against the wire by the disk with the handle attached. This forms a pad which may easily be dried and saved to check back other beaters.

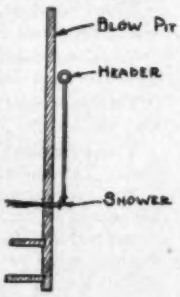


Black Paper Envelopes for Standard Samples

IF THE standard samples of paper used to check against are kept in black paper envelopes, they will keep their color better, be kept cleaner, and will last longer than if kept uncovered, which results in better uniformity of product.

Washing Stock from Blowpits

WHERE formerly four men on each shift were required to wash 250 tons of sulphite per day from six sulphite blowpits, the installation of nozzles as shown and the addition of another outlet has enabled one man to operate this alone. A header goes around the pit, which is circular. This supplies water at high pressure to thirteen one-inch nozzles and four two-inch nozzles. The arrangement has been very satisfactory. One man on each shift now sluices out the stock at a very uniform density. When the water is turned on through the various nozzles, the stock is washed out more or less automatically and does not require the constant attention necessary where one or two hoses are used.



Preventing Streaks

IN MAKING high grade papers the formation of streaks is sometimes prevented by gouging out the first row of holes in the suction box. This has been carried still further with very good results by using brass-covered suction boxes with slots extending the full length. This is also said to be of benefit in preventing two sidedness.

The sum of $12,000 was recently paid for the newspaper concession on a Chicago street intersection. The material assets were invoiced as $25—four small wooden benches on which to pile papers. The balance was chargeable to "good will."

Forty Million Dollar Forest Program Proposed

A ten-year program under which forty million dollars would be authorized for the purchase of national forest lands in the eastern half of the United States is contained in a bill just introduced by Senator Charles L. McNary, Republican, Oregon, as S. 3736 and by Congressman Roy O. Woodruff, Republican, Michigan, as H. R. 11034. According to The American Forestry Association which is sponsoring the bill, the fiscal program outlined is the next essential step in forestry legislation. It would make possible the completion of forest land purchases in the White and Appalachian mountains authorized by the Weeks Law of 1911 and the acquiring of 2,500,000 acres in the southern pine regions and a similar area in the lake states. The purchases in the lake states and in the south are made possible by the Clarke-McNary Law, passed in June, 1924, which authorizes the acquiring of land for the purpose of timber production on the watersheds of navigable streams, as well as for protection of stream flow. Much of the land may be secured at prices consistent with the government policy of national forest purchases.

Officials of The American Forestry Association point out that 3,000,000 acres additional should be purchased in the White and Appalachian mountains in order to extend and consolidate present government holdings in practicable administrative units and to complete the group of national forests planned under the Weeks Law. During the past thirteen years only a little over two and one-half million acres have been purchased. The idle lands available for national forest purposes in the south are especially suited to the production of timber. A similar condition exists in the lake states. This region has contributed most of the lumber for the development of the great agricultural belt of the middle west, and it is stated by friends of the new bill that this region, under wise management, can be made to do its part in forest restoration. A system of national forests encircling the larger centers of population and utilizing areas adapted only for the production of timber, should be effective as demonstrations in the practice of forestry. This would result eventually in putting under forest management through private ownership a much larger acreage than that purchased by the government. Furthermore, this group of forests could be made to furnish recreation spaces for three-fourths of the nation's population, besides producing timber and pulpwood and protecting stream flow.

Hearings before the Senate and House Committees are to be held soon.

Final Arrangements Completed for Forestry Gathering

Record attendance is predicted by George D. Pratt, president of the American Forestry Association for the annual meeting of the association to be held in Chicago on January 22, at the Hamilton Club, 20 South Dearborn street, with the Illinois Forestry Association, The Hamilton Club and the Union League Club as hosts. This gathering will mark the fiftieth birthday of the association and will attract representatives from all parts of the country because of the widespread interest in the operation of the new Clarke-McNary forestry law.

The American Forestry Association was first organized in Chicago in 1875, and was founded on the principles that a permanent and sufficient supply of forests is essential to the household of the nation; that forest cover exerts an important influence upon water supply and soil conditions; that utilization of soil suitable chiefly for forest planting is necessary to national prosperity; and that fire is the great enemy of forests, present and future. During the past half century the association has continuously and actively promoted constructive measures for the preservation and use of our forests. Its activities and accomplishments are a record of which its members may well be proud, and the American Forestry Association stands today in the vanguard of the movement for the betterment of forestry in America.

The Joint Committee on Approved Chemists has recently approved for listing, Mr. Arthur R. Mass, of 308 East Eighth St., Los Angeles, Cal.

Cost Convention of the Paper Industry

Held in New York City, December 10, 11 and 12, 1924

A VERY successful convention was held December 10, 11 and 12, 1924, at the Commodore Hotel, New York City, by the Cost Association of the Paper Industry.

The conference started at 10 A. M. Wednesday morning, December 10th, with an address by President James A. Reilly.

The program was carefully designed with a view to covering the most important problems with which the accountants of the pulp and paper industry have to deal. As Mr. Reilly pointed out, the pulp and paper industry is one in which the investments in "Fixed Assets" must be carefully watched, in view of the large amounts which must be invested in such assets, before pulp or paper can be made. It is very necessary therefore, that the overhead expenses shall be properly distributed to the products, necessitating a careful classification of these assets.

Mr. L. H. Olson, vice-president of the American Appraisal Co., gave an excellent address on this subject, which appears on another page of this issue. Following the address, a number of questions were asked and answered by Mr. Olson, indicating the interest which those present took in the subject. Besides distributing a number of forms, Mr. Olson exhibited a number of charts, which proved to be of great interest to those present.

The afternoon session on Wednesday was devoted to a discussion of "Raw Materials" and their treatment for cost purposes. The first speaker was Mr. A. W. Astley, Chemical Paper Manufacturing Co., who spoke on the subject of "Rags"; he was followed by Miss Helen U. Kiely, chief chemist of the American Writing Paper Co., Holyoke, Mass., who spoke on "Rags, Woodpulp and Waste Papers." Both of these speakers dealt exhaustively with the subject, and were constantly asked for detailed information regarding statements made. Miss Kiely recommended that all cost equivalents be checked every three months, if any reliability is to be placed on their values. She stated that "it is only by repeated checks upon the figures the cost man is using, that any advance can be made. The cost man should be thoroughly acquainted with manufacturing to be able to see the chances for avoiding waste and reducing costs, as the small margin of profit that is realized on the average grades of paper does not permit of leaks and preventable wastages." Another recommendation she made, was that, "the exact number of pounds of sulphite to be added to the beater should be stated in all furnishes, instead of saying, 'balance sulphite'." She made the point, that in all probability if this were done, more care would be taken with the rag furnish, so that not more than the specified amount of sulphite would have to be added.

These speakers were followed by Mr. S. F. Fannon, director of public service, Sherman Service Inc., his subject being "Measuring Men." He made the point that men should be measured by their accomplishments and character rather than by any other standards and urged upon manufacturers the importance of studying the human element entering into their manufacturing operations, as carefully as they study the machinery element. He said that it was no use to spend $100,000 in installing up-to-date machinery, unless a careful selection of right kind of men to use the machinery was made, and following this, the men should be studied as carefully as the machine, to see that they were functioning properly and doing their share equally with the machine, to produce the best results. Mr. Fannon is a fluent speaker, and his address was thoroughly well received by all present.

Thursday Session

Thursday morning was devoted principally to a discussion of the "Labor Problem," participated in by Mr. J. P. Jordan, Industrial Engineer, New York City, and Mr. Adam Wilkinson, labor commissioner of the American Writing Paper Co. Dr. Hugh P. Baker, executive secretary of the American Paper & Pulp Association, spoke on "The Value of Organized Effort." Unfortunately, Mr. E. B. Gray, assistant auditor of the S. D. Warren Company, was unable to be present at the afternoon session, his place being taken by Mr. J. Austin Smith, who spoke on the subject of "How Long Will Your Business Live?"

Mr. Smith made an eloquent plea for co-operation in industries, for the collection of important data enabling each industry to ascertain definitely and accurately, as well as the individual concerns of the industry, which way it was headed. He pointed out the prime necessity for such co-operation, at a time when undoubtedly competition was increasing and efficiency at a premium. Following his address, the business session was held.

Mr. Thomas J. Burke, Secretary-Treasurer of the Association, rendered his report, showing that the deficit which existed at the end of 1923 had been wiped out, and that the Cost Association was now in sound financial position. He also reported that the Association had received eight applications for membership within the last six weeks, and that he expected several more in the near future. He referred to the success which had attended the publication of the Association's Monthly Journal, started in April, 1924; also to the fact that a number of mills had been assisted in their claims for Refund of Federal Taxes paid in 1917, 1918, 1919 and 1920, by the work done by the Association along these lines.

Election of Officers

Following his address, an election of new officers for 1925 took place, after President Reilly had stated that it would not be possible for him to continue in the presidency for another year. The following officers were then elected unanimously:

President, John E. Hyde, S. D. Warren Company, Cumberland Mills, Maine.

Vice-President, Writing, James A. Reilly, American Writing Paper Co., Holyoke, Mass.

Vice-President, Sulphite Bond, W. F. Bromley, Asst. Treas. of the Hammermill Paper Company, Erie, Pa.

Vice-President, Wrapping, A. M. Van Douser, Auditor, Marathon Paper Mills Co., Rothschild, Wisconsin.

Vice-President, Tissue, E. J. Fitzgerald, Asst. Secy., Scott Paper Co., Chester, Pa.

Vice-President, Cover, J. C. McCormick, Asst. Treas., Knowlton Bros. Inc., Watertown, N. Y.

Vice-President, Board, G. A. Filer, Auditor, Cornell Wood Products Co., 190 N. State St., Chicago, Ill.

Vice-President, Converters, M. F. Peterson, Asst. Treas., U. S. Envelope Co., Springfield, Mass.

Vice-President, Rope, Ralph B. Hersey, Cost Acct., Hollingsworth & Vose Co., 333 Washington Street, Boston, Mass.

Vice-President, Hanging, E. H. Roorbach, Harmon Paper Co., Brownville, N. Y.

Vice-President, Waxed, Thomas W. Peck, Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.

The secretary-treasurer requested that another accountant be named in each group, to form a small committee with the vice-president in that group and himself, for the purpose of dealing with particular problems arising from time to time within the various groups, and to arrange for group meetings whenever and wherever it is thought best to hold them, during the course of the year. These gentlemen were named as follows:

Writing, R. B. Shemanski, George A. Whiting Paper Co., Menasha, Wis.

Sulphite Bond, L. J. Catheron, Eastern Mfg. Co., 199 Washington St., Boston, Mass.

Wrapping, D. C. Shaw, Jr., Tarentum Paper Mills, 2210 Oliver Bldg., Pittsburg, Pa.

Tissue, Paul Koenig, Continental Paper & Bag Mills, 100 East 42nd St., N. Y. City.

Cover, C. F. Niederman, Beckett Paper Co., Hamilton, Ohio.

Board, W. D. Bryson, Asst. Treas., Philadelphia Paper Mfg. Co., Manayunk, Phila., Pa.

Book, W. C. Scott, Dill & Collins Co., 140 N. 6th St., Phila., Pa.

Waxed, E. A. Meyer, Menasha Printing & Carton Co., Menasha, Wis.

Wrapping, B. H. Cooper, Bemis Brothers Bag Co., Peoria, Ill.

The Secretary was also instructed to get into touch with any others who might wish to get together as a group, to promote the use of better accounting methods in their group.

A very fine banquet was held on Thursday evening, the music being supplied by Maurice Wolfsie's orchestra and song leader.

Friday Session

One of the most important sessions of the conference was held on Friday morning, the subject being "Steam and White Water Losses." These are the two items in which greater losses are incurred perhaps than in any other cost item in the manufacture of pulp and paper. Mr. W. G. MacNaughton, secretary-treasurer of the Technical Association of the Pulp & Paper Industry opened with a short address, in which he emphasized the importance of the subject, and introduced Mr. G. D. Bearce, vice-chairman of the Committee on Waste, appointed by that association. In it he drew attention to the large annual savings that could be effected by those mills, where the efficiency of the steam plant was not more than 60%. He distributed schedules showing the influence of boiler house efficiency on operating cost. Where, assuming certain figures for a 100 ton of balanced newsprint pulp and paper mill, an annual saving of over $60,000 could be made, by increasing the efficiency of the steam plant from 60% to 75%, and pointed out, that while this might be a high efficiency for a pulp and paper mill, yet, as high as 85% was being attained in some of the Public Utility boiler plants. In another schedule he illustrated savings that might be effected, by reclaiming the fiber from white water, by the installation of "save-alls," etc. That large savings can be effected in this manner is an undisputed fact, only the best method of doing so being in question. Mr. G. A. Ware, who followed Mr. Bearce, emphasized this fact, and urged upon the accountants present, the importance of drawing attention to the necessity for taking action to counteract such losses, by producing forms and charts to illustrate clearly the dollars and cents value of the fibers which are lost regularly by their respective mills. A number of questions were asked the speakers, and in fact, a very interesting and productive session was held. Copies of the proceedings will be forwarded to members of the Cost Association at an early date.

The afternoon session was devoted to Statistics, Mr. Stanley Byron, statistician of the Hammermill Paper Company, spoke on our "Statistical Charts," and illustrated by means of a blackboard some of the charts developed by his company, which have been used very successfully in keeping the financial facts relating to the company's business, clearly before the executives. Mr. Byron kindly consented to forward copies of these charts to the Secretary-Treasurer of the Cost Association, at the request of some of those present, and copies will be issued in due course, to the Association's members.

The other afternoon speaker was Mr. John H. Graff, of the Research Department of the Brown Company, Berlin, N. H. Mr. Graff has developed a new method of analyzing statistics. By means of lantern slides he explained clearly this method of analysis. While the subject was rather intricate for a meeting of this kind, Mr. Graff succeeded in conveying to those present, the importance of the subject, and moreover, convinced them that there was a great deal of merit in his plan. It is always a difficult matter to judge of such matters, without a careful study of the methods employed. It is hoped that a study of Mr. Graff's address will be made and the point settled as to how far it can be successfully used, with a view to determining particularly the future market cost of those raw materials, which play such an important part in the pulp and paper industry. If Mr. Graff's method (which consists mainly of using known factors to determine the future course of other factors) can be used to determine with any degree of accuracy the future cost of raw material prices, he will surely have succeeded in accomplishing something that will mean the saving of great sums of money for the pulp and paper industry.

This address wound up a Convention which can be ranked among the finest yet held by the Cost Association.

List of Those Present

A. W. Astley, Chemical Paper Mfg. Co.; Dr. H. P. Baker, American Paper & Pulp Assn.; B. H. Barlow, St. Croix Paper Co.; Charles E. Bear, York Haven Paper Co.; G. D. Bearce, Engineer, Newsprint Service Bureau; Joseph F. Bergen, Hamersley Mfg. Co.; Charles W. Bidwell, Fort Howard Paper Co.; Walter D. Bryson, Philadelphia Paper Mfg. Co.; Herbert N. Bugbee, Felulah Paper Co.; Thomas J. Burke, Secy.-Treas., Cost Assn. of the Paper Industry; Seth L. Bush, Crocker McElwain Co. & Chemical Paper Mfg. Co.; Stanley Byron, Hammermill Paper Co.; Lewis J. Catheron, Eastern Manufacturing Co.; J. M. Chesnut, McDowell Paper Mills; B. H. Cooper, Bemis Bros. Bag Co.; Ralph K. Cox, S. George Co.; P. E. Daverin, Strathmore Paper Co.; W. R. Davis, Scott Paper Co.; M. C. Dobrow, Writing Paper Mfrs. Assn.; S. F. Fannon, Director, Sherman Service, Inc.; G. A. Filer, Cornell Wood Products Co.; John H. Graff (Research Dept.), Brown Company; Herbert H. Griswald, C. H. Dexter & Sons, Inc.; John Halligan, Newsprint Service Bureau; E. A. Hawkins, P. H. Glatfelter Co.; Ralph B. Hersey, Hollingsworth & Vose Co.; S. A. Hummer, The York Haven Paper Co.; John E. Hyde, S. D. Warren Co.; J. P. Jordan, Industrial Engineer, New York City; John H. Karges, C. H. Dexter & Sons, Inc.; Miss Helen Kiely, American Writing Paper Co.; Alfred H. King, Crocker-McElwain Co.; J. H. Kline, York Haven Paper Co.; Paul Koenig, Continental Paper & Bag Mills; L. M. Lipa, Foster Box Board Co.; A. C. Looke, Valley Paper Co.; W. G. MacNaughton, Secy.-Treas., Technical Assn. of the Pulp & Paper Industry; Richard J. H. Mays, Chemical Paper Mfg. Co.; L. H. Olson, American Appraisal Co.; M. F. Peterson, U. S. Envelope Co.; Arthur F. Platt, Hollingsworth & Vose Co.; G. D. Porter, Strathmore Paper Co.; Charles M. Ready, St. Croix Paper Co.; James A. Reilly, American Writing Paper Co.; John T. Robinson, Hollingsworth & Vose Co.; S. R. Royce, Arrowhead Mills, Inc.; E. H. Roorbach, Harmon Paper Co.; W. C. Scott, Dill & Collins Co.; J. Austin Smith, J. Austin Smith & Co.; D. C. Shaw, Jr., Tarentum Paper Mills; A. S. Van Houten, Hamersley Mfg. Co.; Louis von Hasslacher, Robert Gair Co.; N. G. Weber, Dill & Collins Co.; C. O. Wellington, C. P. A., Scovell Wellington & Co.; Charles E. Whitten, Canadian Paperboard Co., Ltd.; Joseph E. Whitman, S. D. Warren Co.; Adam Wilkinson, Labor Comm., American Writing Paper Co.

Call for A. P. P. A. Annual Meeting in February

The forty-eighth annual meeting of the American Paper and Pulp Association will be held at the Waldorf-Astoria Hotel, New York City, February 5, 1925.

There will be a business session in the morning, at which matters of importance to the industry will be discussed, the president's luncheon at 1:00 p. m., and the annual banquet at night.

Business conditions, industrial and international relations and association activities, will be discussed at the business meeting in the forenoon. The banquet this year will have a program which will be of more than ordinary interest, short and to the point.

All of the leading railroads of the country have granted special rates for the meetings, and as the National Paper Trade Association will not hold their annual meeting during that week, it will be necessary for everyone attending the meetings to obtain railroad certificates, so that the necessary number may be secured to allow the railroads to validate these certificates, thereby securing the reduced return fare.

The Import Committee of the American Paper Industry has opened offices at 18 East Forty-first Street, New York City, using part of the quarters which the Writing Paper Manufacturers' Association used before transferring headquarters to Springfield, Mass. The committee, of which Henry A. Wise is counsel and Warren B. Bullock manager, has many cases of misclassification and other violations of the customs laws under consideration by government authorities.

New Additions to the E. B. Eddy Mills

SINCE June 25, 1924, when the work was started on the extensions at the old plant of the E. B. Eddy Company, Limited, at Hull, Quebec, remarkable progress has been made. All of the new buildings, including the new paper mill, sulphite and groundwood mill extensions, and the new boiler plant are now completed and the machinery is being installed.

The E. B. Eddy Company, Limited, is one of the oldest pulp and paper making organizations in the Dominion, their company having been organized in 1851 and continuing without interruption through the past seventy-three years.

The property of the company before the improvements were started included groundwood and sulphite pulp mills,

Extensions to the sulphite mill of E. B. Eddy Co., Ltd., Inc.

a paper mill, a fully equipped saw mill, one of the largest match plants in operation, and a modern hydro-electric development together with other minor activities. The various plant buildings are located on a site of approximately 75 acres on the north side of the Ottawa River, which extends from above Chaudiere Falls and roughly follows the shore line with its eastern boundary adjacent to the north abutment of the Alexandria bridge between Ottawa and Hull. Their present paper conversion and converting plants, together with the groundwood pulp mill and hydro-electric development occupy the western section of the site, which is at the upper level above Chaudiere Falls. At the lower or eastern end of the site, the sulphite mill and new paper mill are located.

Due to the continued demand that has been made on the old property and also taking into consideration its age, the directors of the company recognized during the early part of the year that improvements should be decided upon, but whether to improve their present property as a whole or add a new plant and improve only those parts that would best return such improvements was the question that confronted them.

It was finally decided to start the commencement of the new paper conversion plants at the lower site adjacent to the sulphite mill, to improve the sulphite mill to full capacity, to add a new steam plant to supply both paper and sulphite mills and to carry a railroad through from the upper to the lower site with spurs to the different buildings where needed throughout its length.

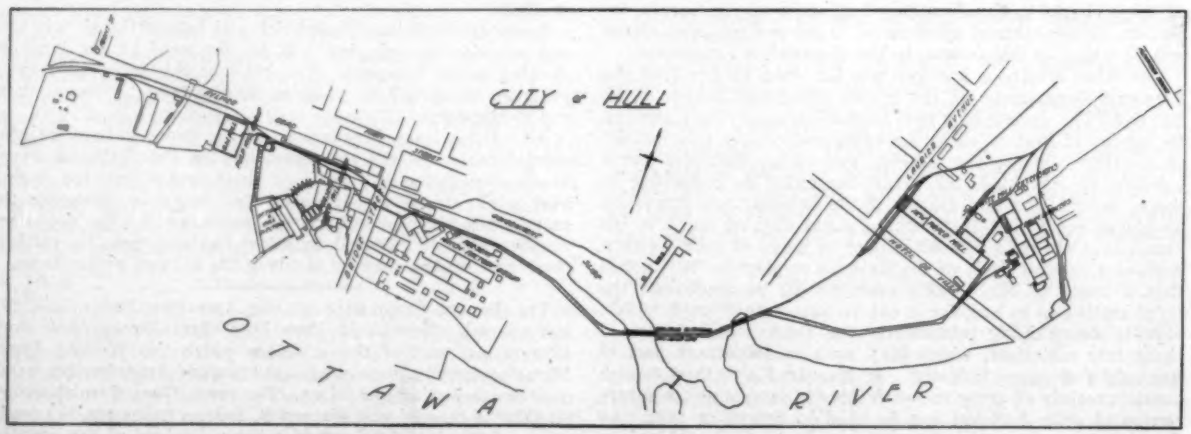
Under this arrangement, sulphite slush will be available at the new paper mill, but as the groundwood mill is at the upper site, a pipe line following the new railroad is now under way through which the groundwood slush will be supplied directly from the groundwood mill, a distance of about three-quarters of a mile.

The new paper mill is a structure over 600 feet long and includes the loading shed, mixing, machine and finishing rooms. The machine room, 328 feet long inside, is one of the longest ever built. A 234-inch, Walmsley, high-speed machine of the latest type provided with a Harland sectional electric drive is now being installed. Heating and ventilating economy will be obtained by the installation of the Ross Engineering ventilating system and Briner economizers.

To provide for the future installation of a similar machine, the side of the building is left temporary so that later the trusses and cranes may be lengthened and the building extended to the full width. Space is also available here for the erection of another building to include two more machines for future development.

The extensions and improvements in the sulphite mill include two new 12-ton digesters, which are being erected by the Horton Steel Works and the corresponding additions to the blow pits and screening and bleaching equipment. In the acid plant, the burner room is being rearranged, new Jenssen gas coolers, a new acid handling system and storage system are being completed which will thoroughly modernize the acid plant.

The new drum barker buildings, which are now completed, will accommodate two Paulson barking drums for the present,

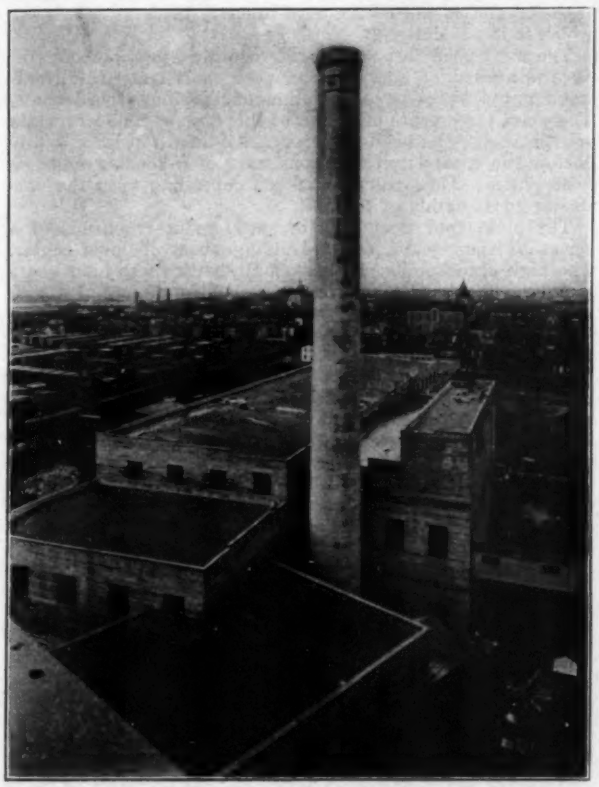


The general plan of the plant of E. B. Eddy Co., Ltd., Inc., Hull, Quebec

with room provided for additional units. The wood room is being rearranged; the knife barkers eliminated, slashers and log haul up relocated and new chippers and chip screens installed.

In the groundwood mill, two additional Paulson barking drums are being installed to prepare the wood and a new screening system installed. A 16-inch wood stave pipe line carries the groundwood slush to the paper mill, a distance of 4,200 feet. This will be capable of handling 100 tons of groundwood pulp in twenty-four hours.

To supply steam to the extensions in the sulphite mill and the paper mill a new boiler plant is being erected. This will house three 800 horsepower Babcock and Wilcox boilers



View of the new paper mill and boiler plant, E. B. Eddy Co., Ltd., Inc., from top of the sulphite mill

equipped with Taylor stokers. The coal is dumped from the cars into a concrete hopper and carried up into the bunker by a bucket elevator. The siding is on an incline so that the cars of coal to be unloaded are pulled up into position by a car puller and when emptied allowed to run back down hill. The coal and ash handling equipment were furnished by the Link Belt Company, and the bunker and steel work by the Dominion Bridge Works.

The railroad extension of approximately one mile includes three bridges and some thousand feet of trestle through the Government slide and other waterways, this rather difficult location having prevented its extension during earlier years. With the paper conversion plants at the lower site, however, direct railroad communication is essential and the standard gauge line now under way will provide for all present and future requirements.

With the completion of the new work, together with the extensions and improvements now under way, the pulp and paper production of the E. B. Eddy Company, Limited, will be greatly augmented and the sales proportionally increased. All plans are laid to have the complete new installation in operation during April, 1925, and if the progress made is kept up this appears entirely feasible.

Mr. George H. Millen, president, who has for so long guided the destinies of the E. B. Eddy Company, Ltd., is keeping a watchful eye on all of the activities under way. Mr. J. T. Sherriff is vice-president in charge of finance and sales policy. Anglin-Norcross of Canada, Ltd., are the general contractors for the buildings and railroad, and H. S. Taylor, consulting engineer, is in charge of engineering and design.

Handling Materials at the Interlake Tissue Mills

Taking advantage of an exceptionally suitable location, the Interlake Tissue Mills, of Merritton, Ontario, have reduced the cost of handling materials to a minimum.

An inside unloading shed on the third floor for handling material coming into the mill is located on a level with the top of the hill at the south end of the mill. Steel doors opening into the room below are laid back against the car to be unloaded. Chutes are then placed at the bottom of the doorway and lead to the floor of the storeroom below. In this manner, pulp and other materials are handled with very little labor and trucking.

Coal is handled in a similar manner. The track from the top of the hill leads directly into the unloading shed over the coal bunker above the boilers, so that the coal is dumped from the cars directly into the bunker, which has an exceptionally large storage capacity. If at any time it is desired to store a larger supply, concrete bins are built outside under the track. If it is found necessary to use these at any time a skip hoist elevator is provided to carry the coal into the bunker.

The finished product, mainly tissue and toiler paper, is packed on the second and third floors at the north end of the mill. The boxes are then taken to the shipping room below by a spiral chute which is installed on the outside of the building.

A. E. S. C. Elects Officers

At the annual meeting of the American Engineering Standards Committee, on December 11, Mr. Charles E. Skinner, a representative of the American Institute of Electrical Engineers, was elected chairman for the year 1925, and Mr. Charles Rufus Harte, representative of the American Electric Railway Association, was elected vice chairman.

Notable developments in the industrial standardization movement, including important progress in the mechanical and mining industries, and in the safety field, its further extension into managerial and trade association activities both here and in Europe, and steps looking toward it in Latin America have taken place during 1924, according to an announcement of the American Engineering Standards Committee.

Interest on the part of management is shown by the fact that standardization is becoming one of the most important and appreciated activities of trade associations, which are the principal mechanism through which management arrives at collective industrial policies.

G. E. Again Reduces Lamp Prices

The General Electric Company has recently made a New Year's announcement to the trade and the public in the form of another reduction, effective January 1st, 1925, on the prices of its larger sizes of incandescent lamps.

The new price lists for Mazda C lamps are as follows:

	Clear	Bowl Enamel	Daylight
100 watt	$ .50	$ .55	$ .80
150 watt	.65	.70	1.05
200 watt	.80	.85	1.30
300 watt	1.25	1.35	1.85
500 watt	2.00	2.15	2.85
750 watt	3.50	3.70	
1,000 watt	3.75	3.95	

The Diamond Power Specialty Corporation of Detroit, Mich., manufacturers of Diamond Soot Blowers for Water Tube and Horizontal Return Tubular Boilers, have appointed the Midwest Machinery Company, 104-106 So. Main Street, St. Louis, Mo., as their representative for the territory of Missouri, adjacent to St. Louis, south of and including Springfield and Decatur, Ill.

Speed Reducers

By J. E. SCHENKER

THIS is, essentially, an era of high speed prime movers. The turbine with its high R.P.M is far more efficient than the low speed engine. The small high speed motor is more efficient, just as powerful and less costly than the larger one of slow speed.

Because industries are eager to adopt these more efficient units, the problem of speed reduction is more significant than it has ever been. The solution of this problem calls for a compact, efficient device that will permit the use of the high speed units with their economy, and step down the R.P.M. to a practical degree.

Pulleys and belts, chains and sprockets, rope drives, open gearings, or any combinations of these are all methods of speed reduction found in practically every industry. While these methods of speed reduction possess certain individual

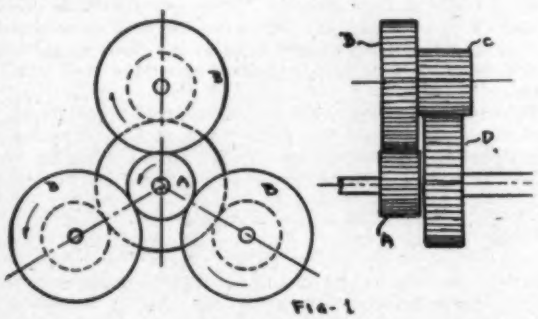


Fig. 1

merits, they also have serious objections. Since the maximum practical ratio for belt drive is 6: 1 and that of chain or spur gear is 8: 1, it is evident that great reduction is only possible by the use of a series of reducing units.

Satisfactory service on double belt transmission requires a minimum pulley diameter of 12", triple and quadruple belts requiring pulleys of larger diameter. It is evident, then, that transmission that requires considerable speed reduction would necessitate the use of much space.

Open gearing and chains traveling at high velocities and insufficiently lubricated, as they often are, wear rapidly. Belts and ropes deteriorate quickly, particularly in plants where there are fumes. Besides, there is the "Danger" objection which is an important one, unless all exposed rapidly moving parts are well guarded.

In order to meet the demand for a speed reducer that will meet all general purposes, that will permit the use of the efficient high speed prime movers, and still not possess the disadvantages of the prevalent methods of speed reduction—a number of concerns have placed upon the market a unit known generally as a Speed Reducer.

These reducers represent considerable progress in their field. They are all compact, safe and possess none of the disadvantages outlined above. The design of gear reducers falls into four general classifications:

1—Worm.
2—Plain Spur.
3—Planetary.
4—Non-Planetary.

Worm gearing is a common method of securing high speed reductions between shafts which are at right angles to each other. Speed reducers of this type are produced by a number of concerns, and are all of similar design. Both the worm and gear are entirely encased and run in an oil bath. The worm is generally integral with the high speed shaft. The difference in elevation of the high speed shaft and the low speed gear shaft is the center to center distance between the worm and gear. Satisfactory transmission is best obtained when the gear is of bronze and the worm of a case hardened low carbon steel. The controlling factor governing load capacity of any worm gear transmission is the heating effect rather than the strength of the gear teeth. When overloaded the temperature often increases to such an extent that the oil becomes too thin to lubricate properly, resulting in excessive wear.

The worm type of reducer is a satisfactory unit within its capacity and should not be used to carry loads at speeds for which it is not designed.

The most used forms of speed reducers are those that reduce in a straight line, the low speed shaft being to all outward appearances a continuation of the high speed shaft. There are three types of design of this kind of reducers, plain spur, planetary and non-planetary. All these types are totally enclosed in a cast iron case consisting of a housing and two head plates. These vary in design, depending upon the particular construction of the unit.

The plain spur gear type of speed reducer consists of a series of spur gears, each revolving about its own center. The high speed pinion meshes usually with three idler gears making contact at 120 degree points of the pinion. Integral with each of these gears, or better yet, keyed to the same shaft is another smaller gear which in turn drives a larger gear, making contact at 120 degree points of the larger gear. This large gear is keyed to the slow speed shaft. Any reduction required may be attained by proper gear ratios, or by making series combinations of the unit just described. Figure 1 shows diagrammatically the relationship of gears of this type.

Pinion (A) is high-speed, being keyed to a shaft which is coupled to the motor. It meshes with the three larger gears (B), bringing a reduction dependent upon the gear ratio. Gears (C) moving at this reduced speed further meshes at three contact points with (D) for further reduction. Essentially there are five units to this single stage reducer; the high speed shaft and pinion, three counter shaft each carrying a large and small gear and the slow speed gear with its shaft. A reducer of this type, although there are two re-

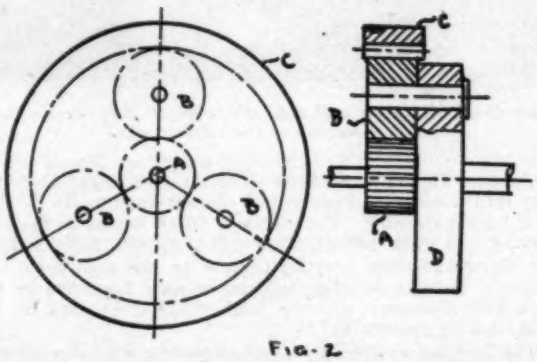


Fig. 2

ductions, is known as a single type. The double reducer has a larger case with a partition between two stages, similar to one just described. These stages are connected in series. In this type of reducer the principal loads are subjected to the counter shaft journals as a result of the tooth thrust on the gears (B) and (C).

The third class of Speed Reducers belong to the planetary type. Like reducers in Class II, these also are straight line reducers, using not only plain spur gears but employing also an internal gear.

Figure 2 shows essentially the working mechanism of a single stage reducer of this type. Here, as before, the high speed pinion (A) meshes with the three intermediary gears (B). The gears (B) are journaled on stud-like shafts that protrude from a substantial plate (D) which is integral with,

or keyed to, the low speed shaft. As the three intermediary gears (B) rotate about centers they mesh with a stationary internal gear (C). This causes the entire unit consisting of the three intermediary gears, the plate in which they are journaled, and the low speed shaft, to rotate. Greater speed reduction is obtained by making series combinations of this single stage.

The fourth general classification of gear reducer is generally known as the non-planetary type and possesses certain advantages. The general principles upon which it is based is shown in Figure 3.

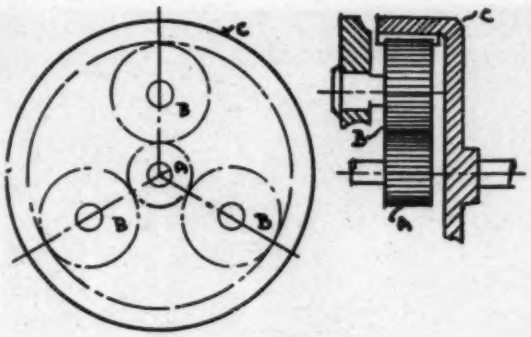


Fig 3.

Here, as in the planetary type, we find the small high speed pinion making three point contacts with three intermediary gears which, in turn, make three point contact with an internal gear. In the non-planetary type, however, the intermediary gears (B) are journaled in the frame, and the internal gear (C) is free to move. For further reduction, series combination of this unit are employed with substantial partitions between each member of the series in which the intermediary gears are journaled.

An analysis of the three general types of straight line speed reducers indicates certain characteristics common to all types and certain particular properties that make each distinctive. The common characteristics possessed by all three classes of reducers are:

1—Straight line reduction.

2—Two reductions in a single stage.

3—The use of three intermediary gears driven by the high speed pinion.

Each particular type, however, is unique in itself. As seen in Figures 1, 2 and 3, pinion (A) is subjected to the same forces in all the types, the forces being applied at 120 degree points. Assuming that the horsepower being transferred is the same, and the pinions of equal size, each pinion is subjected to three forces of equal magnitude.

The task of a speed reducer is to deliver high speed power at lower speed. Theoretically, there is no loss of horsepower in this transformation. Actually, there is very little. The formula for H.P. illustrates exactly what change is made in the reduction of speed.

$$(1)\quad H = \frac{P \pi D N}{33000 \times 12}$$

where H is horsepower, P is load in pounds, D is diameter in inches, N is revolutions per minute.

Torque is expressed by the formula

$$(2)\quad T = P \frac{D}{2}$$

Therefore, substituting equation 2 in equation 1

$$(3)\quad H = \frac{\pi T N}{33000 \times 6} = \frac{T N}{63025}$$

$$\text{or}\quad (4)\quad T = \frac{63025\ H}{N}$$

Solving the equation on the basis of power input is equal to power output—theoretically correct—the relationship expressed by equation 4 may be reduced to an even simpler form

$$(5)\quad H = \frac{T N}{63025}$$

$$(6)\quad H_2 = \frac{T_2 N_2}{63025}$$

where T is Torque at high speed, N is high speed R.P.M., T_2 is low speed torque, H_2 is low speed R.P.M., but

$$H = H_2$$

$$\frac{T N}{63025} = \frac{T_2 N_2}{63025}$$

$$T N = T_2 N_2$$

$$(7)\quad \frac{T}{T_2} = \frac{N_2}{N}$$

Equation 7 indicates that the torque and the R.P.M. are inversely proportional when frictional losses are disregarded.

Equation 4 indicates what occurs when the speed is reduced. H, the horsepower, is a constant. Diminishing the denominator N, therefore, means an increase in torque, T. If the low speed shaft rotates at 1/100 the high speed shaft the torque is increased 100 times by the speed reduction.

Referring again to equation 2, we find that T is a function of the load and the diameter. If the load be applied at a short radius to give a certain torque, it must of necessity be larger than if applied to a greater radius. So great does this torque become upon great speed reduction that the three point application of load, found in all the types of reducers, is necessary to keep down the tremendous size of a single load.

The non-planetary type goes a step further in this respect by making the torque radius as large as possible. The final reduction is accomplished by the intermediary gears driving the internal gear. Since the load is applied in three points on the internal gear each force in a one-third component of the entire and the entire is the least possible because it is applied at the greatest possible radius, at the pitch circle of the internal gear.

The planetary type does not fully utilize this advantage as the true final propelling is accomplished by the reaction in the journals of the intermediary gears that force the rotation of the plate (D) (Figure 2).

The force arm in the plain spur gear type of reducer is the pitch radius of the gear (D) (see Figure 1) which is less than the arm of either of the other two types.

To determine which type of design of speed reducer is the superior, it is logical to list the requirements of speed reducers in general, and the type that best fulfills these requirements is perhaps the best in design. Speed reducers claim their superior place on the following basis:

1—Great reduction of speed possible.

2—Compactness, small space required.

3—Safe—no open gearing.

4—Dirt and dust proof—entirely enclosed.

A New Spur Gear Speed Transformer

The Hill Clutch Machine & Foundry Co., Cleveland, Ohio, have developed a spur gear speed transformer (patent applied for) known as the "Industrial Type," realizing the need for an efficient and durable speed changing device for such service as is encountered in connection with conveyor drives in pulp and paper mills, all general industrial work where speed transformer units are operated under continuous or heavy service conditions; in other words, something substantial to meet the every day rough usage of mill operation.

This speed transformer consists of a nest of plain spur gears revolving in oil, changing the revolutions per minute of the input shaft to some desired revolutions per minute of the output shaft. The power transmitted is the same in both shafts. The efficiency is higher than any other form of gearing. The gears all have 20° involute form cut teeth. The short length of these teeth combined with their powerful cross section insures great strength and reliability.

Of great importance is the central housing located in the

main frame. With this construction it is possible to offer a gear transformer having both high and low speed shafts supported in double bronze bearings, insuring strength, rigidity and smooth operation. They have also provided for ordinary thrust conditions.

Great accessibility is obtained, as the cap and both ends can be quickly removed. The oiling arrangement is unique, being a continuous and thorough splash system lubrication obtained by a metal disc on the high speed shaft which automatically lubricates every gear and bearing in the case. The entire unit is enclosed, is dust proof and leak proof.

Both high and low speed shafts are in identical axial alignment. The action is positive and both shafts revolve in the same direction.

The "Industrial Type" speed transformer is made in seven sizes. Each size has a number which bears a fixed relation to the diameter of the low speed shaft. The number also indicates the horsepower the low speed is capable of safely transmitting at 100 R.P.M. The machine being a closely coupled unit, it requires very little space for installation.

Everlasting Floors for Paper and Pulp Mills

The subject of floors is an important one to paper and pulp manufacturers. While some of the old mills still have wooden floors, all of the up-to-date plants naturally have floors made principally of concrete. There has been one great objection to concrete floors, however, and that is their wearing away, sometimes in ruts, and getting holes in them on account of trucking, and, in many cases, they become dusty, which is always an objection in a paper mill.

These troubles seem to be overcome by what is known as the Andrews Everwear Cast Iron Floor Grating, manufactured by Wilder-Strong Implement Co., Fort Wayne, Ind. This grating is made in the form of a webbing about three inches thick with openings of one and a half inch square. This webbing or grating is laid in the top coat of the concrete floor. The iron surface acts as a wearing surface and the concrete coming up through the openings serves to keep the floors from being slippery as an all-iron floor would be. The grating or webbing lays flat with the concrete and naturally this takes most of the wear. It would take more than an ordinary lifetime to wear them out.

The Consolidated Paper Company of Monroe, Michigan, states that they have trucked two hundred tons daily over a floor built with this grating for seven years without any perceptible wear, and we believe it would be profitable for any paper manufacturer who is having troubles of this kind, and all of them do sooner or later, to get in touch with these manufacturers and thereby get rid once and for all of this troublesome question.

Combustion Efficiency Raised Through Modern Equipment

The paper industry is taxing itself needlessly with the cost of 1,350,000 to 2,500,000 tons of coal a year if figures on the waste of fuel in the average boiler plant hold good for the paper and pulp mills of the country.

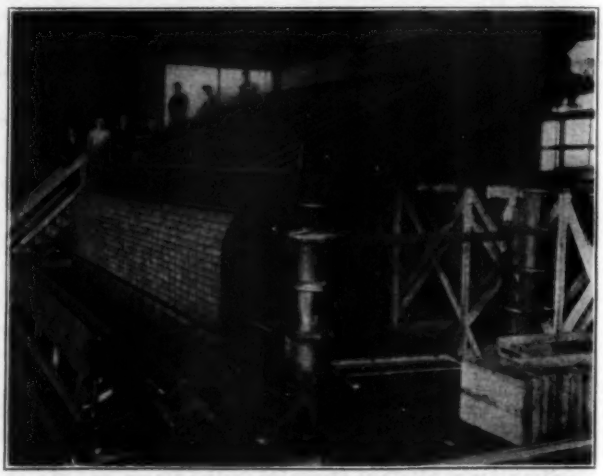
Speaking before the Engineers' Society of Western Pennsylvania, steel works section, at Pittsburgh on December 18, J. G. Worker, assistant to the president of the American Engineering Company, of Philadelphia, estimated that the efficiency of the average industrial power plant could be raised from 15 to 25 per cent by the installation of modern stokers and accessory devices.

Applying these figures to the paper industry, with its annual coal consumption of 9,000,000 tons, it is evident that the sum involved is tremendous. What the saving of such a sum each year would mean to the industry staggers the imagination. It would be equivalent to a general tax reduction, for there is no tax that bears more heavily on production than that of waste.

Not only would there be millions of dollars in direct saving, but by relieving the railroads of the burden of transporting millions of tons of needless freight they would be enabled to give better service to industry in general.

Mr. Worker pointed out that with 12,000,000 horsepower of stoker installations in the United States on which 200,000,000 tons of coal are burned each year, and new installations being made at the rate of 750,000 horsepower a year, the stoker system is the practically universal method of burning coal. Installations of oil burning systems account for little more than one per cent of the total horsepower in the United States, while pulverized coal installations are not even one per cent.

Forecasting the trend of development in combustion engineering, Mr. Worker pointed out that we must discriminate sharply between combustion processes and heat recovery elements. Much of the apparent superiority in some of the



Largest mechanical stoker in the world. Six of these stokers, built by the American Engineering Co., of Philadelphia, are being installed by the Public Service Co., of New Jersey in its central station at Kearny, N. J.

published results of tests of pulverized coal, he said, are due not to any inherent advantage in this way of burning coal, but rather to the heat recovery devices provided. Too often comparisons are made between the performance of a pulverized coal installation in which the last word in heat recovery has been incorporated and a stoker installation in which an old style stoker has been set with solid brick walls and no heat recovery whatever.

"It has been only a few years since most stokers were operated with natural draft, except in the multiple retort underfeed stoker, where forced draft was used," said Mr. Worker. "The original stoker was made in only a few sizes. It was short, without an extension grate and crudely built. As at that time most of the boiler settings were wide, no attempt was made to change the length of the stoker, but more retorts in width were installed for high capacity."

In the old stokers when high capacity was desired the fuel had to be burned as rapidly as possible—too rapidly for efficient combustion. In the newer stokers the length has been increased so as to give ample time for complete combustion. Mr. Worker showed with lantern slides a comparison of the stoker of a few years ago with those of today. Among the latter are the stokers built by the American Engineering Company for the Kearny station of the Public Service Company of New Jersey. These stokers are the largest ever constructed. They are 24 feet 10 inches in overall depth and 27 feet 9 inches wide and are able to burn 35 tons of coal an hour.

Hydraulic Vertical-Horizontal Shop Press

To meet a demand for a general utility shop press, the Watson-Stillman Co., New York City, has combined in one unit a vertical press for forcing, bending, straightening, pressing, etc., and a horizontal press for all the operations which are ordinarily done on a press of this character.

The machine may be converted into a horizontal press by rotating a hand wheel, and is so balanced that the change from vertical to horizontal position may be made without the assistance of crane or jack. In the horizontal position, it may

be used for a variety of purposes, such as bending structural shapes, bending pipe, bars, force fitting, forcing on and off gears, discs, wheels, etc. The maximum pressure is 60 tons. For forcing long shafts, the abutment beam may be moved out a maximum of seven feet. A four-wheel truck is provided to permit easy handling and also to support the beam when in the extended position.

Hydraulic pressure is used only for the high pressure stroke of the ram. The idle portion of the forward stroke and the return movement is effected by a pinion which meshes with a rack in the ram. This rack and pinion device is of sufficient power to make use of the press for light arbor work without hydraulic power.

The press is usually furnished with a hand pump complete with hydraulic gauge, pipe and connections. It may also be operated by a small two-plunger power pump.

A New Safety Collar

It is estimated that ten per cent of the power generated in the average paper mill is wasted between the generator and the consuming machine. Attention to this loss of power has given rise to changes in power transmission equipment and the development of more efficient means.

One of the most recent developments along this line is a new safety collar, manufactured by the Link-Belt Co. It is intended to maintain the alignment of such equipment as pulleys, shaft bearings, hangers, etc.

Great strength, toughness, durability and light weight have all been incorporated in this new malleable iron safety collar, in addition to which a new design which permits the collar to be split in two pieces, thus affording ready and economical installment or adjustment. It is made also in the solid ring type, both types being accurately machine finished, assuring a tight fit and a pleasing appearance.

Handling flat paper, ton rolls of paper and small rolls of roofing material, by Liftrucks was the feature of a 4-page circular in two colors, which was recently issued by the Revolvator Co., the manufacturers. The machine was also shown elevating barrels of oil and bales of cotton, piling them up to the roof.

Brown Hoist New Model

The Brown Hoisting Machinery Co., of Cleveland, Ohio, has just brought out a greatly improved model of their No. 4, 20-ton capacity locomotive crane. Users of previous models

will be quick to note the many improvements that have been incorporated in this new model. The more noticeable changes are: the high boom hitch, the wide truck frame, the extra large diameter rotating ring and the contour of the cab. The latter presents a more pleasing appearance and it is of better construction.

New Dolly Truck for Efficient Handling

Fifteen years' experience in handling rolls of paper in one of the largest mills in this country has given birth to the Little Giant Dolly Truck, illustrated herewith. This truck has proven to be one of the greatest pieces of efficiency equipment that has come on the market to take up loss of time and material in handling large rolls of paper in many mills, due to lack of proper trucking facilities.

The truck is practically indestructible—frame of malleable iron—wheels of steel—roller bearings—and axles of high

quality steel, assuring the user of strength and stability for any task, yet not so heavy but what it may be easily carried from place to place as the occasion demands.

The skid projections are so constructed that one man can easily roll or slide an exceedingly heavy load upon the back of the truck, and once loaded can be easily pushed anywhere desired.

The wheels on the center axles are larger than those on the ends, permitting tilting—that is why it is so easy for the operator to guide.

Any roll of paper, box, barrel or crate can be slid or rolled upon truck without pushing it sidewise. The little Giant stays "put" until it is pushed endwise.

It is built low with projecting skids sloping down to a few inches of the floor, thus permitting heavy articles to be removed from the truck without jar or contact with sharp edges that would either rack or burst the packages. This is a feature that makes the truck so popular with paper manufacturers. No more loss on roll paper bursted at ends.

New Load Regulator for Grinders

The Meyer Governor Co. of Minneapolis, Minn., has recently developed a load regulator for motor-driven pulp grinders that utilizes in large measure the same construction that has made the Meyer Governor such a pronounced success as a speed regulator for waterwheel-driven pulp grinders. Their new load regulator is a surprisingly simple piece of mechanism with practically no moving parts, yet it controls the load on the motor between very close limits as the accompanying load curve shows.

The new Meyer load regulator is in effect a load-adjusted pressure regulating valve. This dual principle of control is fundamental to the Meyer governor patents and results in a remarkably steady and quietly functioning regulator. In a later issue we hope to be able to present a more detailed description of the new regulator.

Largest Dryer Felt Loom in U. S.

The largest dryer-felt loom in the United States has recently been put into operation at the Brandon Duck Mills in Greenville, South Carolina. The installation of this extra large loom, which will weave felts up to 240 inches in width, was

necessary because of the demand for wide Brandon felts from Canadian newsprint mills.

The Brandon Mills have also greatly increased their capacity to manufacture their 3-ply "Triumph" felt by the addition of several new looms and by conversion of several others. Their business in the "Triumph" weave is steadily increasing everywhere, and although on the market but a short while, it has already proved itself a leader.

The Morey Paper Mill Supply Co. with offices in Boston, Mass., and Three Rivers, Que., are the selling agents.

Gardco Paint vs. Rust

The problem of corrosion undoubtedly causes the greatest concern to the maintenance engineer in paper mills. His problems are many. He has a conglomeration of conditions, any one of which would require a quality paint. Many preservatives have been tried and used in the average plant with more or less indifferent success. Because of this, manufacturers have had to resort to wood rather than steel or concrete construction in certain departments in order to keep maintenance costs at normal.

The majority of paint failures noticed seem to be due to either peeling or chipping of the film from the steel surfaces painted. The theory for this condition is that the essential oils in the film are thrown off by volatilization, leaving the coating so dry that with the least amount of expansion and contraction of the metal the above described action takes place.

Gardco Paint, a rust preservative of many years' successful use in other fields, has just recently been introduced to pulp and paper manufacturers by the Gardco Paint Products Company of Chicago and its distributors in many of the principal cities. They claim that this anti-corrosive compound contains no added oils and that, therefore, there is nothing of a volatile matter that will be thrown off in the drying process or be forced from the film even under extreme heat conditions. They further state that Gardco is impervious to the action of acid and alkali fumes, brine, salt water, moisture and condensation, in addition to standing heat temperatures up to 750° F. This metal paint may be the means of solving many of the industry's heretofore troublesome problems.

Shartle Builds Immense Beater

What is claimed to be the largest iron tub beater which has ever been built, was recently constructed by the Shartle Brothers Machine Co., Middletown, Ohio. This type of beater is made for use as a regular beater, and also as a breaker beater. It is perhaps of interest to note that this type of beater has been used as a breaker in one of the most modern Kraft mills that has ever been erected, and is also being used in one of the largest book mills of this country. The construction lends itself to use as a cooker.

It is the intention of the Shartle Brothers Machine Co. to build these iron tub beaters in the breaker type for use in board mills with a capacity of up to 250 tons per 24 hours.

Beg Pardon

We proved we're human, for we made an error. Last month we ran a picture of a corrugating machine in an Armstrong Machine Works advertisement, while the ad itself was written around the Armstrong Steam Trap in its application to paper machine drainage and other drainage service around the plant. We suppose it looked a little queer. At any rate, the Armstrong is used wherever there is condensate to be drained.

In 263 paper mills, several thousand Armstrong steam traps are doing all sorts of drainage jobs.

The West Virginia Pulp and Paper Company, whose principal offices are at 200 Fifth avenue, New York, has filed notice of an increase in capital from $8,000,000 to $125,000,000. The entire increase in stock, it was stated, has been subscribed to by the present stockholders.

The M. L. Macauley Company, Inc., mill representatives of 30 East Forty-second street, New York, has been appointed sales agent for Greater New York for the entire line of wrapping papers and specialties manufactured by the Bedford Pulp and Paper Company, of Richmond, Va.

Vickers and Combustion Merge Interests in Canada

A merger of far-reaching significance to the engineering and industrial activities of Canada is apparent in the consolidation in Canada between Vickers, Limited, the great engineering and shipbuilding company and their subsidiary companies of Great Britain, and the Combustion Engineering Corporation, Limited, a leading Canadian firm in the steam power plant field, and representing the Canadian interests of the International Combustion Engineering Corporation.

Under the consolidation which takes effect is the formation of a new company, known as Vickers & Combustion Engineering, Limited, with large established offices in Montreal, Toronto, Winnipeg and Vancouver. The entire business of the Combustion Engineering Corporation, Limited, and of its parent company, the International Combustion Engineering Corporation of New York, and the Canadian Sales Agency of Vickers, Limited, and their subsidiary companies, along with the sales of the Industrial department of Canadian Vickers of Montreal comes under one executive control.

Vickers & Combustion Engineering, Limited, will cover the whole range of engineering work in the Dominion, embracing steam power plants, by which is meant complete units, including both construction and equipment hydraulic power plants, large Diesel oil engine installations, mining and general machinery, pulverized coal equipment, all types of automatic stokers, all types of boilers, turbines, both water and steam, oil engines and all types of prime movers.

Two entirely new lines of equipment in Canada are introduced by this amalgamation, namely, the Ruths Steam Accumulator, a Swedish invention, which Vickers and International have had their engineers investigating since early in the spring, and which is said to be of far-reaching importance to all heat-using industries, and the Nordstrom Waste Wood Refuse Dryer, which has also been under observation and investigation since early in the summer. This dryer is of special importance to the paper and saw mill industry, and for that reason is of particular interest in Canada. A further new line that is added to the equipment offered by the amalgamated companies are electric boilers for steam generation, which will form an important part of its activities.

The new company will carry on, on a more extensive scale than heretofore the work done by both Canadian Vickers and Combustion Engineering Corporation in plant design and in contact and collaboration with consulting engineers in Canada, Great Britain and the States, with the underlying thought that Canadian power developments shall embrace the best thought and practice, both in Great Britain and the States.

The new company will have associated with it the manufacturing plants of Canadian Vickers in Montreal and the advantages of the splendid manufacturing facilities of these works. It will also have the manufacturing facilities and association of the many large manufacturing works of Vickers, Limited, in England, with the benefit of the joint engineering ability of International Combustion Engineering Corporation, New York, and its associated companies in London, England, Berlin and Paris, together with the engineering experience of Vickers, Limited, England, and its associated companies.

The personnel of the company will be largely composed of Canadian engineers. The strength of the Board of the new amalgamated company is indicated by the following make-up: Commander Sir A. Trevor Dawson, Bart. R. N., Chairman; George E. Learnard, president of International Combustion Engineering Corporation, vice-chairman; A. J. T. Taylor, president of Combustion Engineering Corp., Ltd., president and chief executive officer; A. R. Gillham, president Canadian Vickers, first vice-president; J. V. Santry, president Combustion Engineering Corporation, New York, vice-president; W. Hamilton Munroe, chief hydraulic engineer, Vickers, Ltd., Barrow-in-Furness, director; John Anderson, secretary-treasurer and director; the solicitor for the company, Mr. John Jennings, K. C., Toronto; bankers, Royal Bank of Canada; auditors, Deloitte, Plender & Griffiths.

Clarke Bros., Limited, of Bear River, N. S., have completed the laying of their water pipe and expect to turn the water on shortly, and to begin manufacturing sulphate pulp. The capacity of the mill is 35 tons a day.

Reforestation in Canada

By ELLWOOD WILSON
Chief Forester, Laurentide Company, Grand Mere, Quebec

ABOUT twenty-five years ago, the Trappist monks at Oka planted a few acres of white pine trees, and a little later the Ontario Government started a nursery and did a small amount of reforestation on drifting sands. This work has been continued and steadily increased in number of trees planted and in importance. The Dominion Government started a nursery at Indian Head, Saskatchewan, which under the able direction of Mr. Norman M. Ross, has distributed millions of trees to the prairie farmers for windbreaks and shelter belts.

In 1908, the Laurentide Co. received a gift of 5,000 pines of different species from the Ontario chief forester, and planted these as an experiment, starting at the same time a small nursery. No more planting was done until 1912, when a considerable amount of purchased stock was planted, and this together with the stock grown in its own nurseries has been planted in increasing quantities up to the present time. In 1923, after a very careful examination of reproduction under natural conditions, on cut-over lands, and also of the growth of its own plantations, and those in the northeastern United States, the Laurentide Company adopted reforestation as a definite policy with a program of three million trees per year. This number will plant about three square miles. The company is acquiring between 150 and 200 square miles situated within twenty miles of its mill, on which to build up a permanent timber reserve which will take care of one-half its present annual requirements. So far 8,000 acres have been planted with success, the mortality averaging less than two per cent, and, except where the trees have been used for underplanting, the growth is entirely satisfactory. Fifty-six acres of nursery are devoted to the growing of native white spruce. The seed supply is collected, cleaned and sorted for use in the nursery, from selected trees.

This is the first work along reforestation lines to be undertaken by any pulp and paper company in Canada, and probably the first or second on the continent. Similar work has been begun by several other companies, one of the first being the Pejepscot Co., which has had for many years a small nursery and has planted quite an area near Cookshire, Que. The late Mr. Cowie made some plantations of pine near Lac des Sables on the Canadian National Railway near Hervey Junction. Unfortunately, a small area of this plantation was burned. The Riordon Co., about 1917 or 1918, started a nursery and commenced to plant on quite a large scale, having at one time nearly one million trees ready to plant, but their unfortunate financial reverses put almost an entire stop to this work. The Abitibi Co. started a nursery and put out last year 125,000 trees. The Spanish River Co. sent a man to be trained at the Laurentide Co. nurseries and have begun in a small way to prepare for this work, which will probably extend as rapidly as possible.

Spruce Along Railroad Right of Way

About 1911 or 1912, the Quebec Forest Service started a nursery at Berthierville, and have sold planting stock to the Laurentide Co. and other companies, and also to farmers and others wishing to plant. This department under Mr. G. C. Piche made some very interesting plantations on a small area of drifting sand at Lachute, Que., and these have done well. A few acres of the same sort of planting has been done at Berthier Junction alongside the Canadian Pacific Railway tracks, and as these can be seen from the trains, they are an interesting sight for the public. The Canadian Pacific has also done considerable work in planting spruce along its right of way to replace the snow fences made out of boards which are necessary in certain localities. The trees not only serve the same purpose as the fences, but hold back the snow more efficiently and are very much more sightly.

The Shawinigan Water & Power Co. have undertaken a large reforestation project on lands purchased for flooding rights. Three hundred and fifty acres per year of these barren lands will be replanted with pine, commencing with those sections which are already badly eroded.

With the great increase in the cost of wood and the rapidly increasing distances of stands fit for logging from the mills, necessitating longer drives and tying up large amounts of capital for from two to three years, the pulp and paper companies are considering more and more seriously the question of reforestation. When it is considered that standing timber under natural conditions which is owned by the companies and held for future consumption is constantly deteriorating, is difficult to protect against fire and insects and will when cut yield on the average not more than six cords per acre, it is only natural that the advantage of plantations made near the mill, on which only the kind of timber wanted will be grown, begin to look very attractive.

Eliminating Wood Waste

By selecting seed from the best trees, selecting only the best of the seed and the best plants from the nursery, the more rapid growth of the highest quality of timber is assured, as all trees which show disease or insect damage will be taken out at the first thinnings. Practically no rotten wood will be taken into the mills, which find it very difficult at present to salvage the large amount of this inferior material standing on their limits. Instead of having large amounts of money tied up in wood which must remain in the streams from two to three years on its way to the mills and then be held in the wood piles for another year, the plantations will increase in volume and value continually until the time when they are harvested, which will be when the financial and silvicultural rotations culminate. The position of those who have been far-sighted enough to undertake this work will be very enviable when those who have not done so are scouring the north shore of the St. Lawrence and the Hudson Bay watershed for even small and scattered timber.

Pacific Coast News

January 2, 1925.

New Mill to Use Waste Timber

The Fidalgo Pulp Manufacturing Co., of Anacortes, Wash., has been incorporated for $151,500. The incorporators are Louis Muench, Ossian Anderson, P. F. Knight, William Morrison, and R. D. S. Talbot.

Designed to operate, using waste hemlock and spruce from other mills, a pulp mill will be erected in Anacortes to start work about June 1. A single digester with a capacity of twenty tons daily will be the first unit installed in the plant which will be located on the south water-front close by the Morrison mill.

Contracts have already been made with the Fidalgo Lumber & Box Co. and the Morrison Mills, of Anacortes, Blaine, and Bellingham, covering the supply of raw material from the waste hemlock and spruce. R. S. Talbot is general manager and vice president of the company, and William Morrison, of the Morrison mills, is a board director.

On application of the company, the Anacortes city council vacated the street end of Seventeenth street on the south water-front to prevail as long as the company untilizes the street end for the purposes of a pulp and paper manufacturing plant. Otherwise it reverts to the city.

Powell River Paper Mills Expanding

The Powell River Paper Mills has awarded contracts calling for additions and improvements to its plant at Powell, B. C., aggregating a cost of $300,000 to Armstrong, Morrison & Co., of Vancouver, B. C.

A new grinding mill and a large fill at the mouth of Powell River will form part of the improvement program and it is expected that these jobs will be completed in six months.

The development program of the company, which will take several years to complete, calls for a total expenditure of $4,000,000 and when completed will double the present output of the plant.

The Vancouver contracting firm built the existing dock and warehouse for the company at Powell River, at a cost of $400,000. The new mill will be of concrete construction and will be 175 by 50 feet in size. Exceptionally heavy construction is specified to carry the heavy pieces of machinery. The fill and rock wall will require 62,000 cubic yards of material. The contractors will install foundations and anchors for future penstock also.

Pacific Coast Companies Take Group Insurance

Following an endorsement of group insurance by the Pacific Coast Paper Box Manufacturers' Association, seven companies included in its membership have provided group life insurance protection for their employees. In each case, the insurance was written by Metropolitan Life Insurance Co., under the community or co-operative plan, wherein employer and employee share the cost. The total coverage amounts to $122,500 on 156 employees.

In addition, six companies, all located in Seattle, have insured their employees for individual amounts ranging from $500 to $1,000. The full coverage under the wholesale plan amounts to $96,000 on 103 lives.

John Lewthwaite, the oldest paper maker in the West, passed away December 11, 1924, at the family residence in Gladstone, Ore. For twenty years Mr. Lewthwaite had been connected with the Crown Willamette Paper Co.'s plant at West Linn, Ore., as superintendent, and retiring from active service held the position of consulting engineer until the time of his death. He was known as the "father of paper makers of the Northwest," and in 1898, when the largest paper making machine in the plant was installed it was named after Mr. Lewthwaite. It is still known as the "John Lewthwaite," and was one of the first paper making machines made which turned out 150-inch paper. At the ceremony with which it was installed all the mill employees gathered to take part.

A certificate to sell stock has been granted to the West Coast Pulp & Paper Co. for the building of a large pulp and paper mill in Olympia, Wash. The plant will be built on the old Olympia Brewery plant at Tumwater, and was incorporated by John H. McNary, F. Gile, William H. Trimble, of Salem, Ore., and Virgil Baker, of Olympia, for $1,250,000. The stock of the company is divided into 7,000 shares of 8 per cent cumulative preferred stock and 5,500 shares of common stock at a par value of $100 per share. The plant will employ about 400 men the year around, and will have a sufficient supply of pulpwood close to the city to take care of the needs of the mill for a long time to come.

The Pacific Straw Paper & Board Co.'s plant in Longview, Wash., is now a finished structure. The mill will turn out thirty tons of straw paper a day, and is located on a 15-acre site. The buildings, which represent an investment of more than $200,000, include a warehouse, paper machine room, engine room, boiler room, and cooking room. The company has announced that plans are now being made for a second unit, the same size as the first, which will be built immediately. Five carloads of machinery have been received by the paper manufacturers in the last few weeks and installation is going forward rapidly.

R. J. Marlowe, salesman for a Denver paper concern, recently made a speedy sale when he obtained an order for 30,000,000 cantaloupe wrappers at a price of $24,000 by telephone from the president of a cantaloupe association who was stopping in Phoenix, Ariz.

President J. A. Martin, of the Pacific Paper Products Co., near Steilacoom, Wash., has invented and installed a new machine which will speed up the manufacture of waxed paper to an average of 800 feet per minute. The firm is located in the basement of the Cascade Paper Co., and expects to supply a large western market. The company has a capitalization of $140,000. Waxed paper "lunch rolls" are to be started on in manufacture, and after the first of the year, when the printing press will be installed, bread wrappers will be made.

Plans are being advanced at Kelso, Wash., for a large paper mill to be erected near Martins Bluff, above Kalama, on the Columbia River. A representative of the company recently obtained options on the Chapman Timber Co.'s site near Martins Bluff, on twenty acres adjoining, belonging to George N. Campbell, cashier of the Kalama State Bank, and on several small tracts, aggregating seventy-five acres. The site has deep water on the Columbia. The company expected to close the options before January 1.

Walter W. Huelat, manager of sales in the print paper department of the Blake-McFall Co., in a talk before the Advertising men's Association at a luncheon meeting recently, said that within the coming twenty-five years the Pacific Northwest will become the world center for paper and paper pulp manufacturing. This development will be the result of the large stands of timber which are available for paper pulp making. He also stated that paper is the foundation of 85 per cent of all forms of publicity.

Lower rates have been ganted to paper and paper products shippers of Lebanon, Ore., to points in eastern Oregon, Washington and Idaho, by the state public service commission recently. This rate holds good on the Southern Pacific, Great Northern, Chicago, Milwaukee & St. Paul, Spokane, Portland & Seattle, and the Oregon-Washington Railway & Navigation Co. lines on January 13, 1925. This change enables the Lebanon paper mills to compete with other firms in districts affected by the rate charges.

A new paper mill will soon rise in St. Helens, Ore., for which the articles of incorporation have been filed with the state department at Salem. The company will be known as the St. Helens Pulp & Paper Co., and is backed financially by the McCormick interests. Headquarters of the plant is to be in St. Helens and the company has a capitalization of $100,000. The incorporators are H. F. McCormick, Paul C. Bates, and H. J. Kaster.

The board of directors of the Columbia River Paper Mills has decided to issue $400,000 in 5½ per cent gold notes which will be due three years from date. "The issue," says Mr. W. B. DuBois, the vice president of the company, "will be to place the financing of our company on a more permanent basis, and will be sold through the Lumberman's Trust Co., of Portland, Ore."

The erection of a possible paper mill plant in the vicinity north of Idaho Falls is being considered, which depends entirely upon the timber investigations which are being made. As a tentative site the Teise Springs, or a location further up the North Fork of the Snake River has been selected.

National Forest Timber Business Breaks Records

All yearly records for cut of timber from the 147 national forests were broken during the calendar year of 1923, states W. B. Greeley, chief of the Forest Service, United States Department of Agriculture, in his annual report to the Secretary of Agriculture.

During this period the cut for the first time in the history of the Forest Service exceeded a billion board feet. This amount exceeded the cut in 1922 by 20 per cent and had a 23 per cent greater value, the report says. In speaking of the fiscal year ending June 30, 1924, the report states that both cut and receipts surpassed the calendar year of 1923.

Three Million Dollar Plant of Brown Paper Mill Company

By O. A. CHIDESTER
Control Engineer, Westinghouse Electric & Manufacturing Co.

THE NEW three-million-dollar paper mill, near West Monroe, Louisiana, owned and operated by the Brown Paper Mill Company, incorporated, of which Mr. H. Lutcher Brown, of Orange, Texas, is president, and Mr. George S. Holmes, formerly of New York State, is vice-president and general manager, has been planned with the intention of making the enterprise as self-operating, self-sustaining, and self-perpetuating as possible.

Timber is obtained from the company's own land, brought to the mill site over the company's own railroad; water is supplied by artesian wells drilled on the premises; and power is furnished by the company's own power plant, gas fuel being used from one of the world's largest fields a few miles distant. The mill itself houses entirely modern and durable mechanical and electrical equipment. Electric operation predominates throughout, and as nearly as possible all processes have been made automatic.

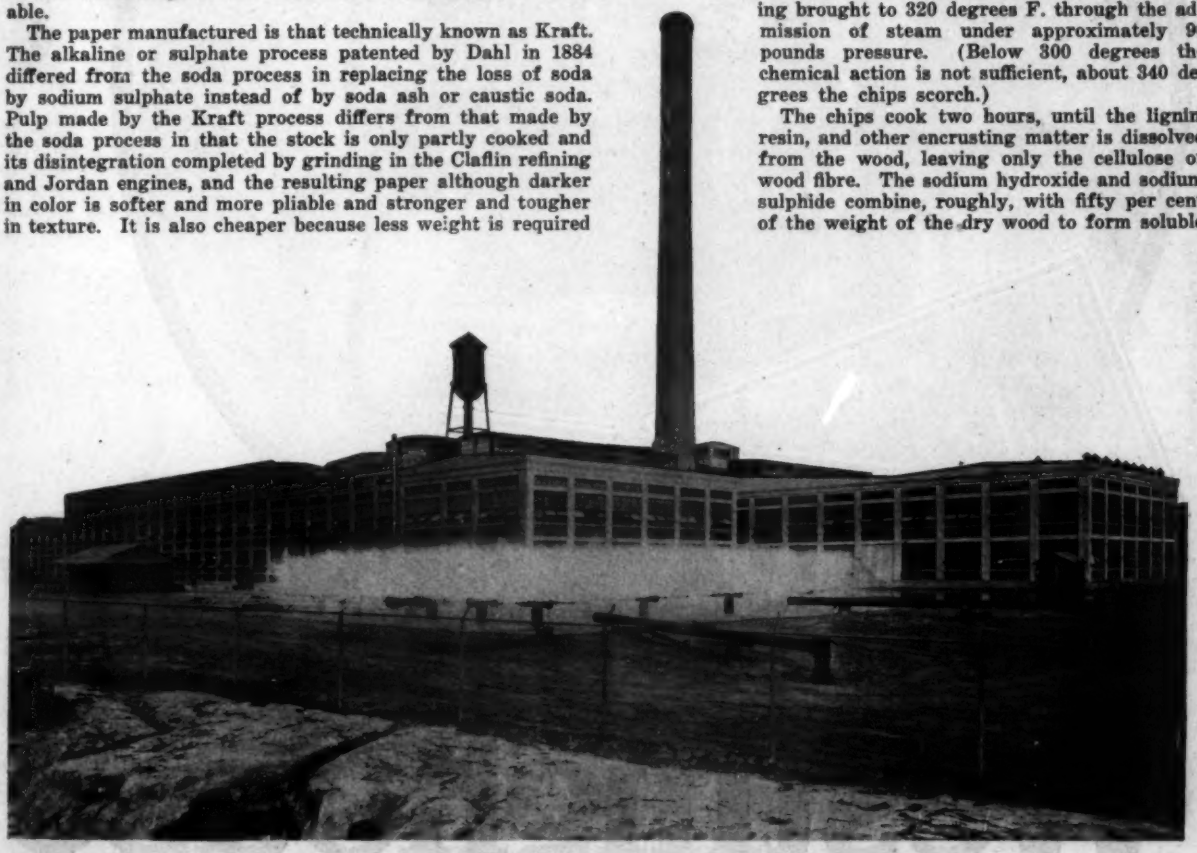
An active reforestation policy will be pursued, the intention being to acquire sufficient land so that areas may be cut in rotation, reforested, and the new growths mature in time for the recurrence of the cutting cycle. The company at present owns 40,000 acres of cut over yellow or southern shortleaf pine land, averaging 10 cords of pulpwood to the acre. About 125 cords per day will be used by the mill in full operation. The railroad owned by the company also penetrates other large forest areas from which timber is available.

The paper manufactured is that technically known as Kraft. The alkaline or sulphate process patented by Dahl in 1884 differed from the soda process in replacing the loss of soda by sodium sulphate instead of by soda ash or caustic soda. Pulp made by the Kraft process differs from that made by the soda process in that the stock is only partly cooked and its disintegration completed by grinding in the Claflin refining and Jordan engines, and the resulting paper although darker in color is softer and more pliable and stronger and tougher in texture. It is also cheaper because less weight is required for strength and because of the milder treatment in the cooking process.

The Pulp Mill

In the forest the trees are cut and split into four-foot blocks from three to 8½ inches in diameter and loaded on block trains. On arrival at the mill the blocks are unloaded from the cars alongside chain conveyors upon which they are thrown as needed and carried to the revolving Paulson barking drum, where the bark is removed. The drum is 12 feet in diameter and 45 feet long, and has capacity of 20 cords an hour. The blocks fall from the opposite end of the barker upon another conveyor which carries them to an 84-inch Carthage chipper in the wood room. The chips are screened, pieces larger than ¾ inches being separated and put through a crusher, and the dust and small refuse being carried away by a refuse conveyor. From the screen the chips are elevated and conveyed to the chip bin, directly over the four Kellogg rotary digesters. The digesters are 9 feet 9 inches in diameter and 26 feet long, and hold from 12 to 15 tons each of wood chips, or enough to form 3 tons of paper. The chip bin has a capacity of 8 digester cooks or charges. Chips from the bin are dropped through a chute into a digester, and white liquor, containing as active agents sodium hydroxide and sodium sulphide added. The digester is rotated on its supporting trunnions, at the rate of about one quarter revolution per minute, the temperature of the contents being brought to 320 degrees F. through the admission of steam under approximately 90 pounds pressure. (Below 300 degrees the chemical action is not sufficient, about 340 degrees the chips scorch.)

The chips cook two hours, until the lignin, resin, and other encrusting matter is dissolved from the wood, leaving only the cellulose or wood fibre. The sodium hydroxide and sodium sulphide combine, roughly, with fifty per cent of the weight of the dry wood to form soluble



Exterior view of the Brown Paper Mill, West Monroe, Louisiana

An Expression

Brown Paper Mill Co., West Monroe, La., designed and built by George F. Hardy, consulting engineer, New York City

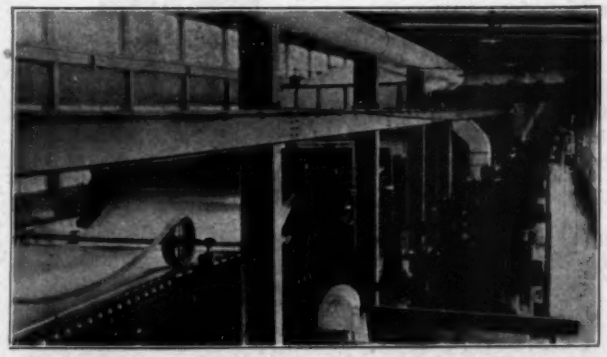
Westinghouse

organic sodium salts. About one hour is consumed in the process of discharging and recharging digesters.

After cooking, the digester charge is blown into one of twelve wash tanks or diffusers, where the dissolved incrusting matter and spent chemicals are washed out, leaving only the fibre, the strong liquor is first drained off and pumped to an 80,000-gallon storage tank on the roof. The contents of the diffuser are then washed by a counterflow of progressively cleaner liquor that has been used in washing the contents of other diffusers until titration shows a remainder of less than one-half of one per cent of soda, after which the fibre is washed with clean hot water and this water discarded.

Following for a moment the course of the spent or black liquor, from the roof storage tank it is allowed to flow into a Zaremba triple effect vacuum evaporator and evaporated to 22 degrees to 25 degrees Baumé, thence to the four disc evaporators, where it is further concentrated to 35 degrees Baumé. In the latter discs on a horizontal shaft revolve slowly in the liquor, hot gases from the incinerating furnaces passing between the upper exposed portions of the discs and evaporating the liquor that adheres to the discs. The concentrated liquor is then admitted to one of four rotary incinerators and dried out or calcined, emerging in the form of black ash or impure sodium carbonate, ranging in size from small grains to lumps the size of a potato. The incinerator is 9 feet in diameter and 20 feet long and lined with fire brick. The greater part of the evaporation takes place in the rear part, where the liquor is fed from a pipe. As the liquor advances toward the heated part it catches fire and on emerging is discharged into the melting furnace, where its complete combustion is provided for by forced draft from a blower. In the smelter, salt cake or sodium sulphate is added to replace the soda lost in the recovery process, all the organic matter is burnt out, and the purified sodium carbonate flows in a red hot molten state into water or weak washings in the dissolving tanks, forming green liquor, a solution of mixed sodium salts. When sufficient in strength for causticizing, the green liquor is pumped to the causticizing tanks and titrated to ascertain its alkaline strength. As much burnt lime as is necessary for the purpose of causticization is added and after causticization the solution is pumped to settling tanks. The lime sludge settling to the bottom is pumped to waste and the clear or white liquor is decanted by means of a swinging siphon and returned to the white liquor tank, ready for use again in the digesters.

Returning to the washed fibre in the diffuser, after the washing process, which consumes about 5 hours, the pulp is discharged into the diffuser chest. From this it is pumped

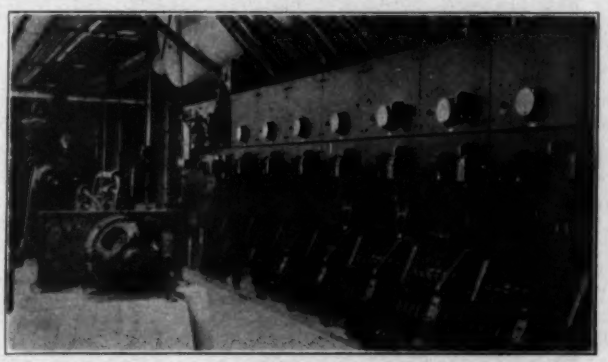


176-inch Pusey & Jones paper machine with Westinghouse sectional drive in the Brown Paper Mill

into the screen head box and washed along an agitated race which screens out the coarse fibre. The rest goes to the pulp thickeners, thence by gravity to the thickening chest, is pumped to the mixing chest, thence to the Claflin chest, to be refined by the four Claflin refining engines. It is then pumped to the Jordan chest, and passing through the Shartle Miami Jordan engines, six in number, reaches the machine chest. From the machine chest it is pumped as needed to the stock regulation box, thence to the machine head box, passes through the machine screens to the flow box, and thence flows on the wire.

The Machine Room

The paper machine is a 178-inch Fourdrinier machine, built by the Pusey & Jones Company, of Wilmington, Delaware. After being shipped to Monroe, the machine foundation plates or tracks were set, leveled, and grouted, and the machine assembled and installed under the supervision of Mr. Caesar



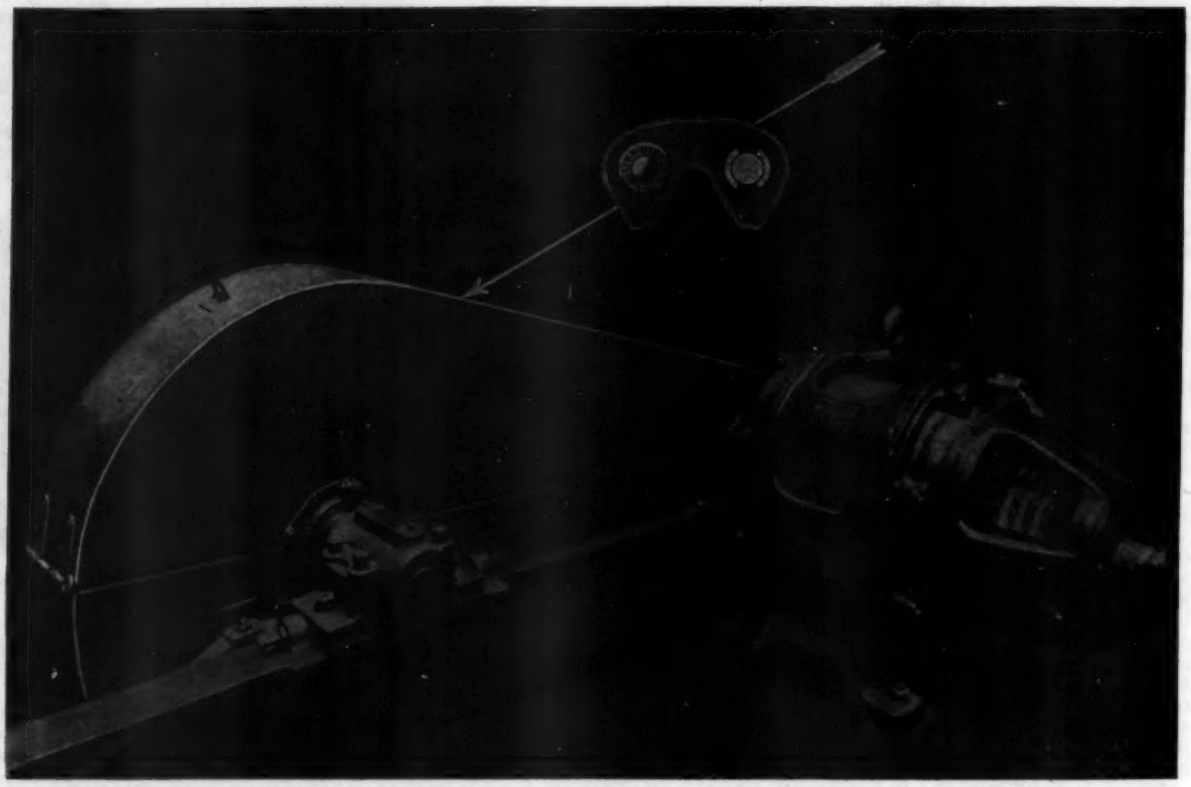
Sectional paper machine drive control board in the Brown Paper Mill

R. McDowell, who, it may be mentioned is over 70 years of age and a veteran erecting engineer of some forty-seven years of service with his company.

The cost of the paper machine alone is over $200,000. The Fourdrinier wire is 176 inches wide and 80 feet long. The breast roll is 24 inches in diameter and has a 178-inch face. The shell or body of this roll is of cast gun metal, bored on the inside and turned or ground on the outside. The couch roll is 30 inches in diameter, and is of the Millspaugh suction type. The table rolls are 6½ inches in diameter and are made of seamless drawn brass tubing, with aluminum heads and steel journals carried in ball bearings. The return wire rolls vary in diameter from 10¾ inches to 14 inches. The rubber deckle straps are 2¼ inches square. There are six brass suction boxes, with adjustable, expanding heads and covers of hard maple. The boxes are oscillated by the Beloit system. There are three presses, with upper press rolls of polished granite controlled by journals running in bell crank arms of heavy press housings. These housings contain screws, worm gears, and hand wheels by which the upper rolls may be lifted when changing felts. The felts are of pure wool, from 48 to 56 feet long. The lower roll of the first press is 25 inches in diameter, and is of the Millspaugh suction type. The second and third press lower rolls have heavy cast iron bodies, and are covered with rubber to 26 inches in diameter.

There are 36 dryers, each 60 inches in diameter and of 174 inches face arranged in two tiers. These dryer races are bored on the inside and turned or ground on the outside. Steam condensate is removed from the wet end of the dryers by a condensate pump and forced by steam pressure from the others. In the last upper dryer overhung toward the calenders an internal water shower pipe is used instead of steam. A receiving or baby dryer of 30 inches in diameter is located at the press roll end of the dryer nest. Two 48-inch dryers assist in drying the two return upper felts, and two others the lower return felts. Pusey & Jones steam joints are used on the driving side journals, Pusey & Jones air valves on the tending side journals. The dryer gears have cut teeth, 8-inch face, 2-inch pitch. A Sheahan patent paper carrier is provided for threading the paper leader through the dryers.

The calender is a single stack of 6 chilled iron rolls, one 18-inch top roll, three 13-inch intermediate rolls, one 18-inch intermediate roll, and one 28-inch bottom roll, all of 170-inch face. The bottom roll weighs 16 tons. Two of the 13-inch intermediate rolls are bored and fitted with Pusey & Jones steam or water joints. Warren flexible calender doctors and feeds are used. The reel is of the Pope patented uniform speed type, with a 42-inch driving drum and two winding drums, of which one receives paper from the calenders while



Increased Production 25%

THAT is what the Westinghouse Dual Frequency Super-Calender Drives with Link-Belt Silent Chain did at the Mill of the Kalamazoo Paper Company, Kalamazoo, Michigan.

And yet that is just one of the many benefits the drives brought this company. Briefly, we learn from them that the lighting cost was reduced (light-obstructing line shafting and belts having been done away with), noise was eliminated, physical exertion and fatigue of operators were decreased, and the fire hazard eliminated.

Silent, efficient and durable—unaffected by atmospheric conditions, and requiring practically no care, Link-Belt Silent chain becomes the ideal means for driving machinery of every type direct from the motor. Send for Silent Chain Data Book No. 125.

Flexible as a Belt—Positive as a Gear—More Efficient than Either

THIS YEAR LINK-BELT IS FIFTY YEARS OLD

LINK-BELT COMPANY

PHILADELPHIA, 2045 Hunting Park Ave. CHICAGO, 300 W. Pershing Road INDIANAPOLIS, P. O. Box 85

1658

LINK-BELT
SILENT CHAIN DRIVES

the other is being unloaded and made ready for use when the receiving roll is filled.

The flow of stock and speed of the paper machine is regulated to vary the weight of the paper from 15 to 90 pounds. The stock, 99½ per cent water, is carried from the flow box by the wire over suction boxes and a suction couch roll which, assisted by gravity, extract part of the water. This water flows into the white water chest, passing through a circulating pump back to the screen room, Jordan, and machine head water.

The sheet of stock is then carried over woolen felts through three pairs of press rolls which press out more of the water,

500 H. P., 450 R. P. M., synchronous motors driving two Shartle Brothers' "Miami" Jordans in the Brown Paper Mill

leaving approximately 70 per cent. Cotton felts or canvases carry the sheet around the 36 dryer rolls, which dry out all but about five per cent of the water. The sheet then passes between the upper pair of calender rolls, back through the middle pair, and out through the bottom pair to the reel. The sheet at the wet end is 174 inches in width, at the dry end approximately 160 inches.

The reel is wound to 13 to 15 inches thickness of paper, transferred to an unwinding stand, and rewound on the winder, being cut by slitters to rolls of any desired width. Duplicate winding equipment is installed in the finishing room, also a cutter and layboy capable of handling 12 rolls at once, and an 84-inch Seybold trimmer.

Broke is dropped through openings to the basement, where it is prepared by a broke beater to be returned to the Jordan chest.

A shipping track terminates a few feet distant from the finishing room, where the wrapped finished product may be loaded into cars.

The Power House

Six artesian wells are drilled on the premises, the deepest of which is 700 feet. The boiler room contains four, 850 horse-power, Badenhausen, water tube boilers with soot blowers and superheaters with thirty Kirkwood gas burners per boiler. The stack is of radial brick, varying from 24 feet to 12 feet inside diameter, from the bottom to the top, and is 250 feet high.

The power plant generating equipment consists of a Westinghouse 3750 Kv-a. bleeder type turbo-generator and condenser, and a 125 Kv-a. lighting turbine for use on Sundays when the large unit is not required.

Exhaust steam, up to 25 pounds in pressure, and of sufficient quantity to dry the paper, and serve all other low pressure steam requirements, is extracted from a low pressure stage of the automatic bleeder turbine, which regulates the pressure at the desired value.

The mill occupies a space of approximately 300 feet by 720 feet covering 2⅛ acres and was designed by Mr. George F. Hardy, mill architect and engineer, of New York, N. Y., and was erected under the supervision and direction of Mr. M. C. McDonald, Resident Engineer. It is located on a site of 120 acres on the Jonesboro road, two and a half miles from the cities of Monroe and West Monroe.

Not the least worthy of mention is the office building, costing over $60,000, a one-story brick and slate structure, of rambling old English architectural design. The architect was Mr. James Gamble Rogers, of New York, New York, designer of the Harkness Memorial Quadrangle at Yale.

Work on the construction of the mill was begun July 6, 1923. The first paper was made September 6, 1924.

The paper machine drive is the well known Westinghouse sectional drive, consisting of an 850 H.P.—600 Kw. synchronous motor generator set, three unit exciter set, eight sectional motors and control. The plant is Westinghouse equipped throughout, over a hundred motors and starters being installed.

Celebrating the successful launching of the new enterprise, the entire edition of the Monroe News Star of September 23, 1924, was printed on paper from the new mill.

The payroll of the mill will include 300 employees, and an additional 100 men will be employed in the forests. The output capacity is 65 tons per day.

A first class first aid hospital, in charge of a competent registered nurse, has been provided to render first aid medical treatment to employees in the event of accident.

New England News

January 2, 1925.

S. D. Warren Co. Mill Electrified

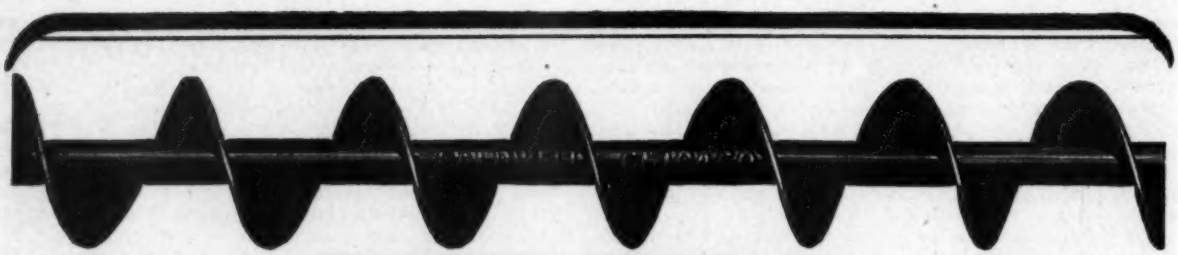
The electrical plant of the S. D. Warren Co. has been entirely modernized with the latest safety devices installed. The company announces completion of this work with the New Year. The company's electrical system now includes four hydro-electric stations on the Presumscott River, at Westbrook, Me. In addition, the company has outside power connections with two companies, necessitating special devices for breaking these currents at periodical intervals during the time of minimum and maximum loads. Recent additions to the generating capacity made it necessary to strengthen the switching apparatus. Shortly after the last steam turbine had been installed the circuit breakers on an 11,000-volt bus showed strain when under short circuit conditions. It was necessary to study the matter from the standpoint of future power needs of the company and the expansion of the public utility power plants with which the mill maintained connections. Finally, Westinghouse Type E circuit breakers were installed, mounted in concrete cell construction, and also a double bus with selector type disconnect switches. Five breakers prospect incoming lines, one an outgoing, and two serve transformers. The tremendous electrical power now in use from three sources, hydro-electric, steam and public power, made necessary extra precautions in the selecting of lightning arresters. Two types of arresters, G. E. and Westinghouse, are used and three units per leg were installed to hasten the discharge. All in all, it is one of the best equipped and safeguarded electrical plants in New England.

Paper Industry Prepares Rate Fight

Preparations are going forward in traffic counsels of New England to oppose the schedules advanced during December by the New England railroads on class freight rates between New England and trunk line cities. Despite the fact that the proposal of the railroads in general involved increases on the first four classes, some decreases on fifth and general decreases on sixth class rates, there are many inequalities and the unfair Maine Central special proposition that spoils the good effect of the salutary sixth class reductions.

The Holyoke district, and the Connecticut Valley in general would suffer greatly on its less carload shipments to trunk line, for l.c.l. paper moves third class and third class will stand drastic increases throughout.

Practically the entire state of Maine, and, in fact, most New Hampshire mills as well will get severe advances, the former from the increase in the mileage block rates to Brunswick from eastern Maine mills. The advances in Maine affect all points east of Bath, Brunswick, Lewiston and Mechanic Falls and, it is felt, would strike a death blow to some Maine mills. It is estimated that the increases would amount to practically $1.00 per ton for the news, of eastern Maine,



CALDWELL VALUE

THE real worth—or value—of an article is predetermined by the ideals of the maker. It is in the doing of small things well that we find the final secret of quality.

Users of Caldwell products have never questioned the presence of superior value (quality) in this equipment. Once used they know this value for what it is. Self interest prompts them to continue specifying Caldwell products over long spans of years.

If you need elevating, conveying or transmission machinery promptly, address Caldwell or the nearest Link-Belt office.

H. W. CALDWELL & SON CO.
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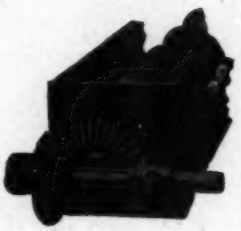
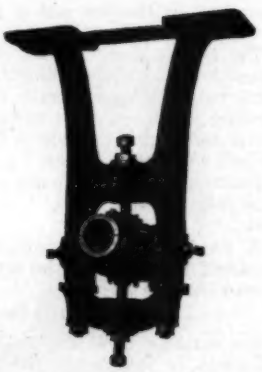
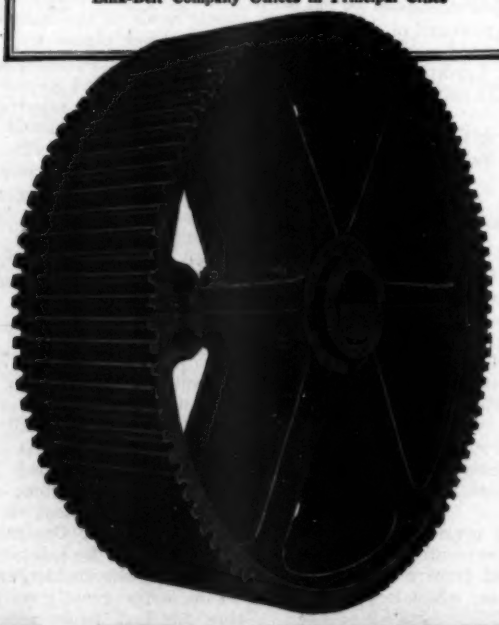






Caldwell Line
Power Transmission Machinery.
Bearings.
Shafting.
Pulleys.
Machine Molded Gears.
Cut Gears.
Rope Drives.
Chains, Wheels, Buckets

Caldwell Line
Elevating and Conveying Machinery.
Helicoid Conveyor and Accessories.
Belt Conveyors.
Chain Conveyors.
Elevator Buckets.
Boots and Casings.
Catalogs on request.

C-28

CALDWELL

and while a few of those mills could absorb it others would be put out of the running by competitors from New York and Canada. Figuring on close margins has become the practice in New England, and a $1 per ton subtracted from the new price is a factor.

A recent round-table discussion of the entire Maine matter was held at the Congress Square Hotel in Portland. Those present included C. F. Young of the Oxford Paper Co., S. E. Cordwell of the S. D. Warren Co., A. P. Lane of the Great Northern Paper Co., A. E. Pearson of the Hollingsworth & Whitney Co., H. D. Caskey of the Advance Bag & Paper Co., C. L. Whittemore of the New England Paper & Pulp Traffic Association. Other industries and agencies were represented and it was agreed that if Chicago and trunk line cities were to continue using some Maine news and printing paper, drastic action must be taken. Chicago, it was brought out, would very quickly turn its Maine purchases to Michigan mills should not the price advantage be maintained.

Late Developments in A. W. P. Co. Situation

Further important developments are noted in the case that attracts most interest in paper circles of New England, Old Colony Trust vs. American Writing Paper Co. The Bank through its attorneys, Storey, Thorndike, Palmer & Dodge has filed an amendment in the Federal Equity Court at Boston to their bill of last September 22. The amended bill makes certain important additional prayers to the court and an insertion in the statement worthy of note.

Section 7 of the original complaint is expanded to include a detailed statement of the present status of the company's 1st mortgage bonds. The Bank declares that $788,000 of these are held by the plaintiff as trustee, another $130,000 have been retired and cancelled and $99,000 are held by the American Writing Paper Co.

The plaintiff further prays that in the sale or other disposition of the properties by the court, the Old Colony Trust Co., will be properly reimbursed for its services and for the costs incidental to attorney's fees. A most important interjection in the bill, however, is the request that the properties be taken over for the account of the 1st mortgage bondholders, that a manager be appointed by the court to act for them. It is currently understood that any sale would involve but one purchaser—the representative of the 1st mortgage bondholders and inasmuch as those bonds can be procured in the open market under 50—it seems unlikely that the merchandise creditors of the company can expect much from the coming transfer in technical ownership to the Bondholders.

Russell Patent Owners Defeated on Appeal

The American Sulphite Pulp Co., owners of the Russell patent for sulphite pulp digester linings, were unsuccessful in their final suit to secure damages for infringement. A decision handed down by Judge Andersen, who, with Justices Bingham and Johnson, heard the case, sitting as the First Circuit Court of Appeals, was favorable to the defendants, who in this suit were the Burgess Sulphite Fibre Co. of Berlin, N. H., now owned by Brown & Co. The Russell patent, dated June, 1891, was a legitimate patent on acid-resisting cement material to act as a liner for sulphite digesters. It corrected a great source of trouble in the old-fashioned lead liners which failed to expand and contract uniformly. The validity of the patent was fully established in the case of American Sulphite Pulp Co. vs. Howland Falls Co. The first suit for infringement against the Burgess company occurred in 1899.

Of ten digesters the court held (in 1899) nine to be infringements, but refused to so hold the tenth. A settlement for $32,000 was made at that time. The Burgess Company later constructed eight additional digesters lined much the same as the tenth one, which Judge Putnam in the early decision had found to be no infringement. They were lined with two layers of brick set, so that each covered the seams of the other, the seams being filled with an acid-resisting cement. Russell, the discoverer of the patented material, however, expressly disclaimed for his patent this brick seaming. Between bricks and steel shell of the digester wall was another layer, a composition of many materials including some cement, but also silicate of soda, litharge, etc. The purpose of this was as insulation solely and so Judge Lowell in the court of first instance construed it. The plaintiff appealed the district court's decision to the circuit court and the Burgess Company is entirely vindicated. Incidentally, it is the first litigation over the Russell patent in which the plaintiff has been unsuccessful.

Augustus L. Smith

A pioneer in modern newsprint manufacture and one of the triumvirate that built up one of the greatest paper organizations of the country, Augustus Ledyard Smith died at his home, at Brookline, Mass., on December 20. He was born in 1862, at Salem, Mass. He came from a distinguished line of forebears, including a grandfather, Augustus W. Smith, who was president of Wesleyan, and his father, A. L. Smith, who was a prominent banker of Appleton, Wis., and also prominent in the politics of the Badger state.

Mr. Smith took his degree from Wesleyan, in 1883, and his A.M. in 1886. After a short period with his father in banking in Appleton he became an organizer of the famous old Manufacturing Investment Co., which operated a string of paper mills in Wisconsin and Maine. When Garret Scenck and E. H. Haskell formed the Great Northern Paper Co., Mr. Smith was secured as an official, and his great knowledge of the industry was at the service of the Great Northern from 1889 to 1913, during which period he was assistant to the president. He retired from the paper industry in 1913, though not from all connection with it, as he became associated with the Eastern Talc Co., which later was merged with the Eastern Magnesia Talc Co. From the latter concern he had resigned within a year.

During his activity with the Great Northern Paper Co. in Maine, Mr. Smith was active in politics. He was a member of the House of Representatives from 1903 to 1906. He was a member of several Boston and New York clubs. His widow and two daughters survive him.

Arthur Hooper

Arthur Hooper, one of the best known members of the Boston paper trade, clerk of the John Carter Co. Corporation, and a veteran of the Civil War, died at his home in Brookline, Mass., on Monday, January 5. He had been connected with John Carter & Co. since 1882, working his way up to his position occupied at time of death by faithful services. He was of three who comprised the directorate of the corporation which is one of the largest wholesale paper houses in New England. He had no immediate family. He recently celebrated his 81st birthday.

Prominent Super of Holyoke

James Wright, the capable superintendent of the Newton Paper Co., of Holyoke, Mass., died at his home at 44 Laurel street in that city during the past month. He had been superintendent for fifteen years and an employe of Holyoke mill for a much longer period. He was born in Scotland and came to Holyoke when 22 years of age. He was employed from the first by the Newton Paper Co. and has been with them since. He is survived by his son, a widow and four daughters.

Veteran Holyoke Peper Maker

Charles F. Huntley, a veteran paper maker of Holyoke, Mass., employed in the Riverside No. 1 Mill of the American Writing Paper Co., died at his home in Holyoke last week. He was very highly regarded by his employers and enjoyed a wide circle of friends among the officials of the Holyoke companies. He is survived by his widow and a son.

The Parker Young Co. is effecting important savings on its pulpwood bill through the utilization of waste lumber from the three plants of its subsidiary, the Woodstock Lumber Co. The latter operates two lumber mills in Maine and one in New Hampshire. Slabs and edgings from these mills are barked by special machinery recently installed at all

OLIVER FILTRATION

is rapidly gaining favor with Paper Mill Managers.

OLIVERS have recently been ordered by:

Daily News Paper Corp.,
North Tonawanda, N. Y.
for pre-thickening Soda Pulp.
Washing Soda Pulp after Bleach.
High density thickening.

S. D. Warren Co. Cumberland, Maine
for washing Soda Pulp after Bleach.

Northern Paper Mills, Green Bay, Wisconsin
for high density thickening, Sulphite Pulp.

Champion Fibre Co., Canton, North Carolina
for high density thickening, Soda Pulp.

Falls Manufacturing Co.,
Oconto Falls, Wisconsin
for washing Brown Stock, Kraft Pulp.

Oliver
Continuous Filter Co.

San Francisco
501 Market St.

New York
33 W. 42nd St.

London
11-13 Southampton Row

three mills. The wood is then shipped to the paper and pulp mills at Lincoln, N. H. Inasmuch as the company produces well over 400,000 cubic feet of lumber daily at its three mills, the waste accumulation is very substantial.

Judge Peters, in the U. S. District Court at Portland, has ordered a verdict of nonsuit in the case of E. S. Daniel, of Greenland, N. H., against the United Paper Board Co. Daniel sued to collect $1 per cord commission on the purchase of pulpwood. Daniel claimed that he had a verbal agreement to recover such an amount if he could put the United in touch with pulpwood sources. He claimed commission on pulpwood purchased of the H. B. Stebbins Lumber Co., of Boston.

A famous Maine power site, known as Clark's Rip, on the Androscoggin River, has been sold to the Central Maine Power Co. It was owned by the International Paper Co. for many years and it was expected the latter company would construct a paper mill on this site.

Bird & Son, Inc., has joined the Hood Rubber Co., of Boston, in a suit against the Government through the U. S. District Court to collect for the confiscation of coal during 1919 and 1920. It is regarded as a test case and is being watched closely by industrial New England.

Among the securities of New England paper mills which have been in demand and have risen sharply during the past year are named St. Croix Paper, Oxford Paper and Great Northern Paper Co. The first named sells at 180, the second at over 90 and the third at 240.

An explosion damaged the machine shop of the Androscoggin Pulp Co., at South Windham, Me., during recent construction on their 3,000-ton coal pocket. The company is returning to coal after several years' experience with fuel oil.

S. B. Copeland, vice president of the Eastern Manufacturing Co., of South Brewer, Me., has been named as a member of the advisory committee of the Department of Commerce for the paper industry.

Bird & Son, Inc., have increased by 75 per cent their storage capacity for rags at their Phillipsdale, R. I., plant by the installation of a stiff leg derrick.

Board of directors of the State of Maine pier have begun to construct a huge addition at the pier to care for tremendous import wood pulp storage.

New York City News

January 2, 1925.

Waste Merchants Elect Officers

At the annual meeting on December 10 of the Waste Merchants' Association of New York, whose membership includes practically all of the concerns dealing in paper mill supplies in this city, Charles McBride, of the Wilson Paper Stock Company, Inc., was re-elected president; Walter Clark, of the Maurice O'Meara Company, was again chosen vice-president; Walter H. Martens, of George W. Miller & Company, Inc., was elected treasurer, and Alfred J. Moran was chosen secretary.

It was announced at the meeting that the controversy which this association has had with the Salvation Army growing out of competition of the Army in bidding on supplies of waste paper had been amicably settled. A committee consisting of Walter H. Martens, chairman, Charles Passanante and Alfred J. Moran, was appointed to make arrangements for the association's annual dinner to be given at the Hotel Commodore on the evening of February 3 during Paper Week in New York.

Kentler Brothers, 136 Liberty St., New York City, have been appointed U. S. selling agents for Messrs. Braunkohlen-u. Chemische Industrie-A. G., Preichow-Wellmitz, Germany, who are actual first-hand producers of Vandyke Brown Crystals, sometimes referred to as Sap Brown. They also represent Messrs. F. Richter, Lille, France, manufacturers of a special grade of Ultramarine Blues.

To Send Out Educational Bulletins

At a meeting of the Waxed Paper Association in the Hotel McAlpin in this city a few days ago a plan was unanimously adopted for the publication of educational bulletins, which will be sent to all customers of the association membership. Each member of the organization has underwritten his share for the publication of these bulletins for the next year.

The association also has under consideration the collective purchasing of wax, and proposes to compile weekly reports of orders and sales of bread wrappers, tissues and other grades of waxed papers. The annual meeting of the association is scheduled for February 3 at the Waldorf-Astoria Hotel, New York.

A petition in bankruptcy was filed December 1 against the Select Paper Company, Inc., jobbers of 219 East Twenty-third street, New York, by the Brooklyn Standard Bag Company, Inc., creditor for $1,800; the Grand Lake Company, creditor for $4,095, and Alfred Bleyer & Company, creditor for $500, and Judge Bondy appointed Albert S. Newman receiver under $1,000 bond. Liabilities of the company were not stated but assets were placed at about $2,000.

The Pulp Bleaching Corporation, of New York City, was incorporated under New York State laws on December 5 with a capital of 1,500 shares of preferred stock valued at $100 each and 1,000 shares of common stock of no par value. R. B. Wolf, R. P. Hill and G. Vanaringe, the latter an attorney of 2 Rector street, New York, were the incorporators.

A petition in bankruptcy was filed by the Service Bag Company, Inc., manufacturer of paper bags of Cedarhurst, Long Island, on December 1, and Judge Garvin appointed Walter S. Gibbs receiver in bond of $5,000. Liabilities were placed at $121,372, and assets at $367,103.

John Mather, of the Becker Woodpulp Company, 501 Fifth avenue, New York, sailed for Europe during the first week of December and will be abroad about two months.

New Bulletin on Forest Fires

The part forest fires have played in the history of the forest stands in the Sierra region of California has been vividly brought out in a new publication entitled, "The Role of Fire in the Pine Forests of California." It embodies the results of observations and study over a considerable period of years. The fire history of the pine forests has been traced through the record kept by the tree in the form of fire scars and through the interpretation of this record it has been possible to work out what has happened in the past two and a half centuries.

Copies of this publication, known as Department Bulletin 1294, may be obtained free of charge, while the supply lasts, by writing to the United States Department of Agriculture, Washington, D. C.

William O'Brien

William O'Brien, Superintendent of the boxboard mill of the Lawrence Paper Mfg. Co., Lawrence, Kansas, since 1911, died in St. Mary's Hospital, Kansas City, Mo., on Friday, December 19th, 1924, following an operation. Illness was of very short duration, O'Brien having been apparently well and attending to his duties at the mill until the morning of December 13th. He was taken to the hospital at Kansas City on December 15th, operated on the 18th, and died the following night.

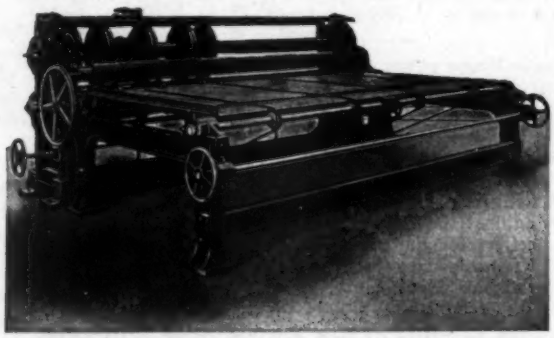
O'Brien went to Lawrence from Middletown, Ohio, having been engaged in the manufacture of paper in the Miami Valley and elsewhere since childhood. The body was taken to Middletown for burial. His wife, two sons and two daughters survive him.

THE JOHNSON FRICTION CLUTCH

as used on

Paper Slotting Machinery

Single clutch with pulley mounted

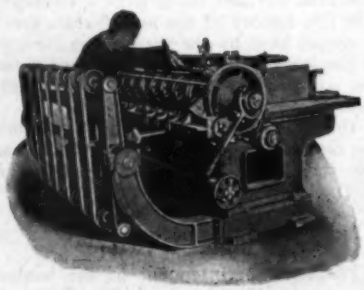


ON LANGSTON TYPE U PAPER SLOTTER

The Johnson Clutch on the cutter shafts speeds up the registering of the slotting heads and the feeds.

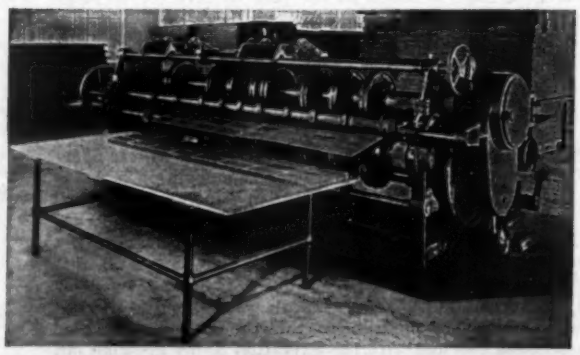
EQUIP WITH JOHNSONS

The Samuel M. Langston Co., of Camden, N. J., has equipped four different types of paper machines with Johnson Clutches. Hundreds of other leading machine builders have adopted them. Equip your paper machines with Johnsons.



ON TYPE VL LANGSTON SLOTTER

The Johnson Clutch is used to disengage the cutter shaft when locating the position of the revolving cutter.



ON TYPE V LANGSTON PAPER SLOTTER

The Johnson Clutch on the cutter shaft speeds up the registering of the slotting heads and the feeds.

Write for Catalog "P. I."

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Michigan News

January 1, 1925.

Western Board Improving Plant

To increase its beater and power capacity, thus making it possible to produce 100 tons of board daily, the Western Board & Paper Co. is spending $60,000 for further improvements to its plant, according to Winship Hodge, manager of the concern.

Mr. Hodge reports the present boiler house is being extended, the new addition to be 70 by 80 feet in dimension, and a 500 horsepower Wickes boiler has been ordered for installation, while the additional power unit will consist of a Hamilton engine connected directly to a 300 K.W. Westinghouse generator. The Dayton Beater and Hoist Co. is building two beaters, one 1,500 and the other 2,200 pounds capacity.

"We have been held back in production by lack of power and beater capacity," said Mr. Hodge. "The additions now being made will eliminate that difficulty. Our board machine originally designed to produce 25 tons a day, since becoming rebuilt, made as high at 87½ tons of board a day. We have run steadily for a week on an average of 80 tons daily. We have been quite as anxious to increase quality as well as more tonnage and are accomplishing both ends in the improvements mapped out."

To finance the expansion program, Western Board & Paper Co. has offered to its stockholders $100,000 first mortgage 6½ per cent bonds to run 15 years. It has been three times oversubscribed. This concern has been very busy the last 12 months and is now operating steadily at full capacity. The regular dividend rate of 13 per cent was maintained during 1924.

Parchment Holds Yule Frolic

The addition of four employees to the honor roll of the Kalamazoo Vegetable Parchment Co. was an interesting incident of the 14th annual Christmas service of that concern in the community house. To attain that distinction, one must have been for at least 10 years in the employ of the company. Those who have reached that mark this year are Don H. Ross, John F. Schlick, Edwin L. Kelly and Steven Martin.

To each one mentioned, President Jacob Kindleberger presented a diploma of service, a service button and added mementos. This increases the company's honor roll to 24 in all.

A point brought out by President Kindleberger was that the success of the company is dependent on the loyalty of every individual. He also declared that the Parchment ideal for 1925 is embodied in the fifteenth century saying, "It's not in mortals to command success, we'll do more—deserve it."

The annual Christmas exercise brought out a crowd that taxed the capacity of the community house. They were treated to an unusually fine program. Dr. Allan Hoben, president of Kalamazoo College, spoke on "Good Will Toward Men." He emphasized the point "In the theme of industry you are on the right track." The Rev. O. R. Grattan offered prayer and the Rev. W. M. Puffer, D. D., pronounced the benediction. Don E. McDowell officiated as leader of the band and conducted a musical program of unusual merit.

Following the program there was a distribution of 800 Christmas presents, souvenirs and calendars. The four divisions of the company shut down Wednesday noon and reopened Friday morning.

Advocates U. S. Control of Pulpwood Reforestation

John W. Blodgett, president of the Blodgett Company, Ltd., of Grand Rapids, nationally known lumberman, in an address delivered December 18 before the members of the Union Club, an exclusive organization of business and professional men of that city, strongly advocated Federal control of pulpwood and lumber reforestation. He not only advocated Federal control, but also declared that the United States government should execute the actual work of reforestation, and emphasized that it is his firm opinion that this is the only sound solution for rehabilitating our vast acreage of cut-over timberlands.

"Believing in the efficiency of American enterprise," said Mr. Blodgett, "I have, in common with thousands of others, been trying for years to discover some way to sugar-coat this pill, but we might as well face the facts now and stop quibbling with this question. Anyone with an ounce of brains will readily concede that our pulpwood and lumber forests are rapidly diminishing and that eventually we must do something, so why delay this important thing; we've got to face the inevitable sooner or later—why not now?

"Private enterprise, to my opinion, must be left entirely out of the reckoning. Use your noodles a moment: what individual or group of individuals will engage in a business enterprise that they know in advance cannot possibly pay a divident in much less than one hundred years, the length of time required to grow trees that will produce strong, close-grained timber or good grade pulpwood?

"To my mind," said Mr. Blodgett, "the United States should purchase as fast as possible extensive areas of cut-over lands, unfitted for agriculture, in the Great Lake states, the Appalachian regions and in the South. These lands should become a part of the National forests and subject to the same laws. They should be made as free from being a political football as possible. No matter what political party is in office, these lands should not be molested or changed to some other undertaking."

Superintendents Hold Meeting

On Thursday evening, December 18th, the Michigan Division of the Superintendent's Association held their regular monthly meeting. At this time, Mr. George S. Pierson, Sanitary Engineer, gave a talk on "Preventable Waste." Mr. Pierson is connected with the University of Michigan Extension Department, which is making a survey of all the mills in the valley, and his work is testing of all waste water which comes from the different mills. He asked the superintendents if they knew how much of their stock was going down the sewer. He gave facts and figures to prove his assertions. The superintendents were very much impressed with his talk.

After finishing his talk, he invited all the superintendents to ask about anything which was not clear. A great many of them did and his methods were discussed by all.

Thirty-three superintendents, chemists, and managers enjoyed his talk.

A Safety Record

In recognition of an exceptional safety record, the employees of the Menominee mill of the Marinette & Menominee Paper Co. were presented with a pocket knife, together with a letter of commendation from the manager. The pocket knife presented to each of them is two-bladed, bone handled and is inscribed with the man's name and that of the company on one side and on the other appears the safety first emblem and the words, "Safety champions, Menominee Mill, 335 days without a lost time accident."

The first lost time accident occurred Nov. 8th, when a fireman, after closing a valve at the head of a bursted steam pipe, backed a ladder and stepped into a pool of hot water that had accumulated on the floor. While the scald was not necessarily serious, it was the first lost time accident for 335 days and proved to be a great disappointment to practically all the men in the mill.

With an average of 160 men on the payroll, this is an exceptionally good accident record. With the safety emblem pennant flown from the flag staff under the American Flag acting as a daily reminder, the safety spirit has permeated almost the entire organization. Mr. Quimette, chairman of the safety committee, declares the mill is going to have a perfect slate during 1925.

Freight Rate Case Briefs Filed with I. C. C.

Supplemental briefs for both the railroads and shippers in the Michigan Traffic League freight rate case, affecting the paper manufacturers of Michigan, have been filed with the Michigan Public Utilities Commission and the Inter-State Commerce Commission.

Ernest L. Ewing the only shippers' counsel remaining active in the case, will argue the brief for the Michigan Traffic League and allied interests which include practically every paper manufacturer in Michigan. This case has been a long, drawn-out one, instigated because of alleged discriminate and unfair

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In Brass and Phosphor Bronze

"Appleton Wires Are Good Wires"

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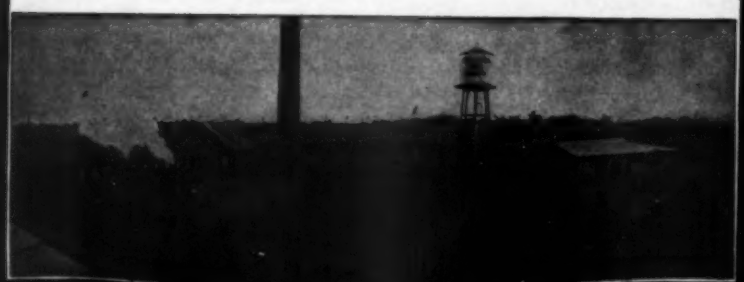
Appleton, Wis., U. S. A.



freight rates on pulpwood, paper and other products manufactured in Michigan. It is said that varied rates have been charged for similar products hauled equal distances. This sort of thing is what the paper manufacturers and others of Michigan are determined to put a stop to, and, according to present indications, the case is likely to be settled satisfactorily in the near future.

Gumbinsky Charged with Shrinkage

Shrinkage of $3,011,667 in the assets of the Daniel Boone Woolen Mills, Inc., during the last ten and one-half months of the administration of Oscar Gumbinsky, is charged in a balance sheet presented to the stockholders by Joseph Byfield. The disclosure was made at an informal meeting, at which time Mr. Byfield appealed for the support of the stockholders at the regular meeting called for December 16th. This latter session will determine whether Mr. Byfield is to remain as head of the company, or whether the Gumbinsky interests will again secure control. All stockholders present voted to support the administration of Mr. Byfield.

The statement issued declares the company has a deficit of $2,544,062 as compared with a surplus of $467,605 Jan. 1, 1924.

"The shrinkage is attributable to four main causes," Mr. Byfield's balance sheet reads, "Losses resulting from unprofitable operation and possible inflation of inventory values, $2,316,417; dividends paid in April and July, $281,350; values hitherto assigned to organization expenses, trade marks, and good will, $198,000; amount written off book value of Baltic plant to reduce cost, $216,000."

Total assets and liabilities in Mr. Byfield's balance sheet, which is given as of Nov. 14, 1924, are listed as $3,570,289. Comparable are total assets and liabilities of $6,178,369 on Dec. 31, 1924. Cash on hand on Nov. 14 was $125,684, compared with $623,746 a year ago.

Filer Fiber Co. Building Settling Basin

The Filer Fiber Co., paper manufacturers of Manistee, Michigan, are constructing a mammouth concrete settling basin through which the water from their pulp washers will be filtered and purified before going into the Manistee river. The huge basin, together with the filtration equipment, will cost many thousands of dollars, according to alleged reports.

This company has been aggravated by certain sportsmen, who for some time have contended that the fish in the Manistee river have been dying as the result of contaminated water emanating from the paper mill. It is rumored, and with apparent truth, that the accusation is without justifiable foundation.

The company is going to the expense of constructing this big settling basin, however, and by so doing is proving itself a real, honest-to-goodness sportsmen organization whether the river was being poisoned by water from its washers or not.

The manufacture of wood pulp from the plant of the Port Huron Sulphite & Paper Co. into a type of carved lumber is a new industry to be undertaken by Synthetic Wood Products Co., Port Huron. By a peculiar process the sulphite mixture is pressed into block form, the molds used giving the impression of wood carving. It is then treated chemically causing it to assume the form of wood. These carved pieces are to be used in general manufacture of furniture.

Employees of the Watervliet Paper Co., numbering 350, were the recipients of $4,200 in cash, a Christmas gift from the corporation. The custom of a Christmas bonus distribution is well established at that concern. W. M. Loveland, president of the company, personally supervised the distribution of the funds. The last year has been a very successful one with the concern.

Paper Manufacturer Heads New Civic Organization

W. A. Jack, general manager of the American Box Board Company, corrugated paper box manufacturers, of Grand Rapids, Michigan, and inventor of the process of corrugated paper making, was named chairman of the committee recently appointed to investigate into the feasibility of forming a symphony orchestra to be known as the Grand Rapids Symphony Orchestra. The idea is sponsored by the Grand Rapids Symphony Society, an organization of prominent citizens, and the movement was launched December 18.

The Mid Lakes Paper Co., which purchased the Mullen Brothers paper mill at St. Joseph, Mich., has closed that plant after a year's operation, which proved a losing venture. It is said the Mid Lakes' liabilities are $60,000 with liquid assets placed at $30,000, though the permanent assets, investments in mill, land and equipment total $205,000.

Bryant Employees' Christmas Celebrations

On Monday and Tuesday evening, December 22 and 23 the employees of the Bryant Paper Co. had their annual Christmas celebration. At this time, Mr. Servass, assistant to President Felix Pagenstecher, welcomed all the employees to the celebrations. All the children received a Christmas token from the company. The dance followed the celebrations, starting at 9 and lasting till 11. Everyone had a wonderful time.

During the last year, the Bryant Paper Co. has finished the new Power House, began the erection of a central machine shop, tore out all the old boilers at the Bryant, Superior and Imperial Divisions, started the new cooking system at the Superior, remodelled the Superior Division, making this one of the best specially two-machine mills in the country, and made Mr. Edward Rutz Superintendent of Power and Maintenance for the whole plant.

Charles Baker, formerly beater engineer at the Monarch Division of the Allied Mills, has been promoted to boss beater man, having charge of all the beaters and washers at the Monarch Division. Mr. Baker has been beater engineer at the Monarch for the last thirteen years, being the oldest beater engineer in this division.

George McGuire, master mechanic of the Bryant Paper Co., who has had a nervous breakdown, is sufficiently recovered to be back to work. Fred Scheid was master mechanic during Mr. McGuire's illness.

Rudolph Germanson, formerly connected with the Kimberly Clark Paper Co., has accepted the position as assistant to the president, Mr. A. G. Gilman of the Allied Paper Mills.

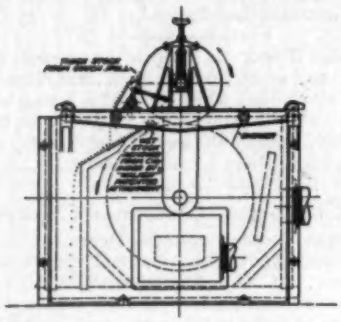
Program Set for Annual Salesmen's Convention

The Sixth Annual Convention of the Salesmen's Association of the Paper Industry will be held at the Waldorf-Astoria Feb. 3, 1925. The annual banquet, to be held in the Roof Garden, will be featured by the best program in the history of the Association. Edgar A. Guest, who made such a fine impression at the fall conference meeting is to be one of the speakers, the other to be either a business man of national prominence or an after-dinner speaker unexcelled in America for power and interest. The identity of the one selected will soon be announced.

The banquet is to be a men's function of the usual high character of the Salesmen's Association. The business session will open at 10:30 A. M. in the East Room. The first portion will be to transact necessary business and to elect officers. The program feature will be a discussion of current events by H. V. Kaltenborn, who addressed the annual banquet last year.

Paper from Eucalyptus Pulp

ACCORDING to Engineering, paper-making experiments have shown that mixtures containing from sixty to seventy percent of eucalyptus pulp are capable of furnishing a paper which possesses a higher bursting strength and a considerably higher tensile strength than those made entirely from spruce pulp under the same manufacturing conditions. Moreover, papers which are made from mixtures which contain as high as sixty percent of the eucalyptus pulp exhibit greater opacity and good finish. In the case of such papers, there is less shrinkage during drying than with papers containing a large proportion of sulphite pulp. The eucalyptus tree which is proposed as a source of pulp wood reaches a size suitable for cutting in from eight to fifteen years, whereas spruce and other pulp wood trees require at least forty years to grow to this size.



Standard Deckers with Walker Attachment

(Patent Applied For)

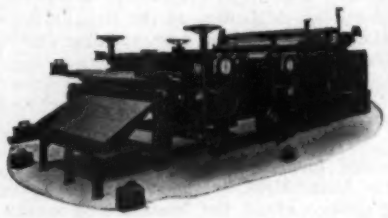
Our Deckers equipped with the Walker Attachment as shown in cut will increase your capacity 50% without requiring additional floor space, power and maintenance.

One firm has ten machines so equipped, which saved the expense of building a new Decker room.

Improvements in couch roll housings offer ready means for regulating consistency of stock.

It is a big advance in Decker design.

Write us today for further particulars.



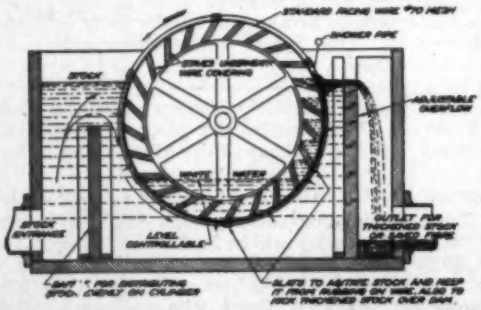
Rogers and Special Wet Machines

IMPROVED AND SIMPLIFIED
SINGLE AND DOUBLE PRESS
FOR CONVERTING CHEMICAL PULP INTO SHEETS 48% DRY

25-35 TONS air-dry pulp per 24 hours. Built in 72" width, with patented pulp weakening and separating device or our new automatic knife cut-off attachment. A real labor saver.

FREIGHT CHARGES are greatly reduced. Savings on this item alone often pay for the machine in one year.

All infringements will be vigorously prosecuted



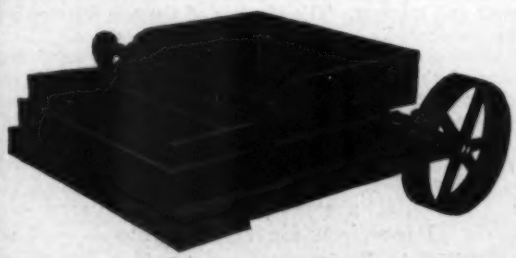
A. D. Wood Machine

Used as Pulp Thickeners, Savealls, Pulp Washers and Water Filters

ADVANTAGES:

Reduced Wire Costs	No Couch Roll
Enormous Capacity	Minimum Repairs
Only 2 H. P. Required	No Doctor
Works Automatically	Requires No Attention

OVER 150 MACHINES SOLD AND IN USE



Wells Undulating Knot and Sliver Screen

Will bear closest investigation from every angle. It separates knots and slivers from all kinds of pulp efficiently, continuously, automatically with negligible cost for operation and upkeep. Simple but rigid construction. Only best materials used. Operation in plain view.

40 TONS DAILY CAPACITY, STANDARD SIZE. WRITE FOR BLUEPRINT AND FURTHER INFORMATION

PULP AND PAPER MILL MACHINERY
GLENS FALLS MACHINE WORKS

GLENS FALLS, NEW YORK

OUR LINE IS MANUFACTURED IN CANADA BY

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Canadian Section

January 1, 1925.

Considerable Financing of Paper Mills

Whalen Pulp and Paper Mills.—A special committee of the debenture holders of the Whalen Pulp and Paper Mills, Vancouver, B. C., is trying to evolve a plan for the refinancing of the company, and are keeping in mind the possible advantage that would result through the construction of a news print mill in order to provide a market for some of the company's pulp production. At a recent meeting a report was presented by Alexander Maclaren, of Buckingham, Que., who spent several weeks in the company's mills in British Columbia. He said that a large quantity of timber had been cut and left lying in the woods for nearly a year, but that steps recently had been taken to use this in the manufacture of pulp. To date, over $2,200,000 of debenture stock has been deposited under the terms of the deposit agreement and the time for receiving the same has been extended. It is thought that if new capital sufficient for the building of a new news print mill can be raised the company can be pulled through and made a financial success.

St. Maurice Paper Company.—A Montreal financial syndicate recently offered an issue of $2,600,000 five-year, five and a half per cent gold notes of the St. Maurice Paper Co., Ltd., which has its mills at Cap de la Madeleine, a suburb of Three-Rivers, Que. The offering price was 98.75 and interest, New York funds, to yield about 5.80 per cent. The purpose of the issue is to repay the company in part for the cost of its two new news print machines and other capital expenditures made during the last few years. These notes will constitute the only funded debt of the company, the net income of which during the past seven years has averaged more than seven times the interest requirements of this issue. The indenture provides that the total funded debt of the company, including this issue, shall at no time exceed $5,000,000. Over 63 per cent of the outstanding capital stock of the company is owned by the Union Bag and Paper Corporation.

Wayagamack Earnings Reduced. For the fiscal year ended November 30th, 1924, the financial statement of Wayagamack Pulp and Paper Company shows a reduction in earnings, with net for that period equal to 1.78 per cent on the stock of the company, as compared with 4.12 per cent in the preceding twelve-month period.

In explanation of the reduction in profits, president C. R. Whitehead states that this was due to severe competition in export markets and the low rate of exchange. He adds the encouraging comment, however, that there is now showing a marked improvement and pointing out that the shareholders have in addition the promising prospect of the entrance of the company into the newsprint field. A favorable arrangement under which the British government will provide a portion of the capital required at a very favorable rate was recently ratified by the shareholders, and in reference to this the report contains the definite announcement that steps are now being taken to put the plan into operation without further delay.

It is expected that the new newsprint machines, with an output of about 200 tons daily, will be ready for operation by the end of 1925.

Belgo Canadian Paper Company.—At a recent meeting, directors of Belgo Canadian Paper Co., Ltd., placed the common stock of the company on a 6 per cent basis, declaring a quarterly dividend of one and one-half per cent, payable on January 10, 1925, to shareholders of record December 31st. At the same time the sixth quarterly dividend on the preferred shares was declared, 1.75 per cent being payable January 2nd, record December 12th. This action is particularly interesting in connection with the present position of the company under Canadian ownership. The financial statement which will make its appearance shortly will cover the eighteen-month period from July 1, 1923, to December 31, 1924, and as it will be the first statement published since the company was taken over by entirely Canadian interests from its former Belgian owners, it is looked forward to with considerable interest. The earnings are expected to be in the neighborhood of 10 to 15 per cent on the common stock. The entire 1925 output is understood to have been sold at a price which will ensure satisfactory profits.

Price Brothers and Company.—Royal Securities Corporation, Limited, of Montreal, recently offered $7,000,000 Price Brothers 6.5 per cent Cumulative Redeemable sinking fund preferred stock, at a price of 96 and accrued dividends, to yield the investor over 6.75 per cent. Two million dollars par value of the stock was taken by Andrew Holt and Company and Kitcat and Aiken, of London, England, for issue in that market, and it is understood that by far the greater portion of the balance was rapidly taken up by Canadian investing institutions and underwriters. The proceeds of the issue are to be used by the company to refund a portion of the cost of recent extensions to the Kenogami mill, for development of the hydro-electric power plant at Chicoutimi, and to provide a portion of the cost of the new 200-ton mill now being constructed at St. Joseph d'Alma.

New Forestry Building at Toronto

Work has been started on the building for the Faculty of Forestry, Toronto University, and the structure is to be ready for occupancy next fall. There will be three laboratories, and an exhibit room for the display of all kinds of woods on the market. Dr. Howe, dean of the Faculty of Forestry, is planning to conduct special courses in the building for woodsmen, camp clerks, and others who are anxious to learn something of forestry.

There will be other courses in cruising, estimating, principles of grading, identification of the different wood species, etc. The building will be 60 by 80 feet, three stories high, and constructed of brick.

Fire broke out in the engine room of the Barber Division of the Provincial Paper Mills at Georgetown, Ont., recently, and considerable damage was done to the roof before the flames were extinguished.

Nipigon Products Acquires New Plants

The Western Stevedore Co., of which Harry Murphy, of Fort William, is the president, has disposed of its big mills and lumbering operations on Orient Bay. The purchaser is the Nipigon Products, Limited, which owns and operates the pulp mill at Nipigon and which proposes the early construction of a large Kraft mill in the Thunder Bay district.

The mills which were recently purchased are approximately 112 miles east of Port Arthur, Ont., on the Canadian National Railway. The saw mill has a capacity of 60,000 feet per ten hours, and the planing mill an output capacity of 30,000 feet per day. It is estimated that upwards of 5,500,000 feet of lumber was turned out of the mills during the last season of operations.

Better Prospects Ahead for Dryden

The mill of the Dryden Paper Co., at Dryden, Ont., which was closed down for some time, is now operating, but is still under the receivership which was established in the fall of 1923. The market for Kraft pulp at present is comparatively good, and higher prices are ruling than a year ago.

The sheathing paper business has, during the last few months, has been rather poor, but is now showing signs of recovery, while the call for wrapping papers in the Western provinces is much improved, due largely to the seasonal demand for this grade of paper. The company is now selling its entire production of wrapping and has in addition reduced

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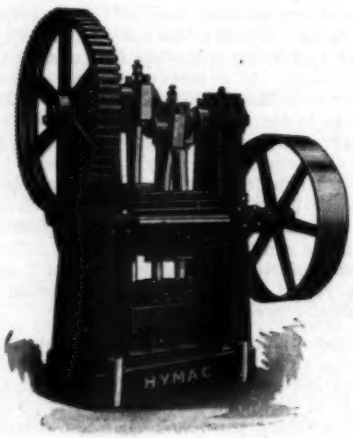
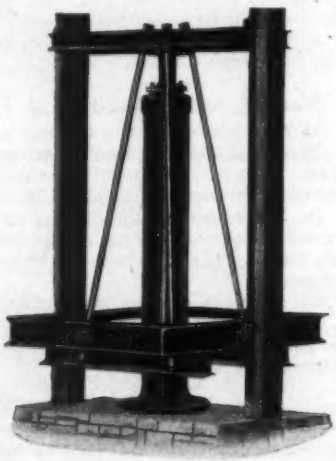
PUMPS

OUR heavy duty TRIPLEX POWER PUMPS are built in sizes from 4" to 14" stroke for pressure up to 6000 pounds. Provided with pulley for belt drive or sub base, gears and pinion for Direct Connection. A high class heavy duty machine for hard service.



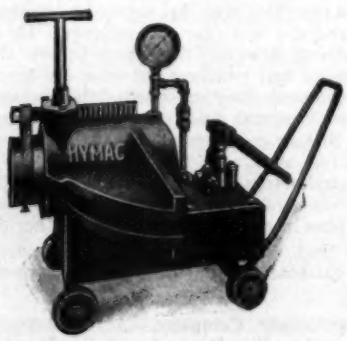


ACCUMULATORS

THE illustration shows the type of ACCUMULATOR accepted as "Standard" in the pulp mill. It is provided with automatic safety control levers and valves. We build several other styles in sizes up to 18" diameter cylinder 15' stroke for any pressure desired.

FORCING PRESSES

EVERY mill requires a FORCING PRESS of some type — our range of styles and sizes is large. The portable type as illustrated is built in sizes from 50 to 800 Tons. The stationary type may be provided in all sizes up to 600 Tons pressure. Straight or inclined.



THE HYDRAULIC MACHINERY CO. LIMITED

MONTREAL, QUE.

its stocks considerably. It is well supplied with pulp wood for the coming season, but is not operating any camps of its own this winter and is buying in the neighborhood of 6,000 cords.

The Dominion Envelope and Carton Company, Toronto, Ont., has purchased the business of the Rudolph Paper Co., New York City. This company manufactures waxed papers and the plant will be removed to Toronto and housed in a new building which the Dominion Envelope and Carton Company is erecting on property adjoining the present premises. The equipment from New York will be used in connection with the carton and specialty bag department of the Dominion company.

At a recent meeting of the directors of the Union Bank of Canada, Mr. John H. Price, of Quebec, was elected a director of the bank to fill the vacancy caused by the death of his father, the late Sir William Price, who was honorary president of the bank. Mr. Price is now president of Price Brothers & Co., of Quebec, and his election as a director of the Union Bank of Canada maintains a connection which has been in existence for upwards of fifty years.

Safety Work at Spanish River

A. P. Costigane, of Toronto, safety engineer of the Ontario Pulp and Paper Makers' Safety Association, recently visited the paper mills of the Spanish River Pulp and Paper Mills, Ltd., at Espanola, and Sturgeon Falls, Ont., and found much interest taken in the work. The recommendations made by the association are being put into effect and the installing of a plant nurse by the mills is working out admirably. In time it is expected that cases of infection from minor diseases will be entirely eliminated, or at least greatly reduced.

Mr. Costigane states that the management and men in the mills are arriving at the conclusion that in order to control cases of infection it is advisable to have a plant nurse in charge of first aid.

McFadden, Sheppard, Dunn, Ltd., have been granted a federal charter to carry on the business of timber merchants, sawmill owners, loggers, pulp and paper makers, and manufacturers of all articles in the manufacture of which wood is used. The authorized capital stock is $100,000, and the head office is at Waubaushene, Ont.

Lennox Mills Reorganized

A provincial charter has been granted to the Daverin Paper Mills, Ltd., with head office at Camden East, Ont., and a capital stock of $350,000. Among the incorporators are Dan Daverin, paper maker, and Edward S. Daverin, chemist, of St. Catharines; L. S. Houpt, paper merchant, and W. E. Houpt, lawyer, of Buffalo, N. Y.

The company has taken over the old Lennox Paper Mills at Camden East, which has been closed down for some time, and the mill has been put into operation under Dan Daverin as manager. He was for some years superintendent of the Montrose Division of the Provincial Paper Mills, at Thorold, Ont.

A provincial charter has been granted to the Hinde & Dauch Paper Co. of Canada, Ltd., to manufacture, buy, sell and deal in all kinds of paper. The authorized capital of the company is $557,800. The company is authorized to take over the assets, undertaking and good will of the Hinde & Dauch Co., of Canada, which has a plant in Toronto where it manufactures fifty tons a day of jute and chip test container boards, fiber boxes, corrugated boxes and wall board.

There were only three lost time accidents during November at the big 500-ton mill of Abitibi Power & Paper Co., at Iroquois Falls, Ont. Every effort is being made to chalk up perfect freedom from accidents during December.

The Harland Engineering Company, of Canada, Ltd., have booked the order for sectional electric drives for the two paper machines to be installed by Price Brothers at their new mill now under construction at St. Joseph d'Alma, Que.

New Paper Mill Will Probaby Be Near Quebec City

Transfer of two thousand square miles of limits located along the Manicouagan River, on the North Shore of the St. Lawrence River, which had been leased by auction in November, 1923, to a syndicate represented by Frank Clarke, of the Gulf Pulp & Paper Co., and also acting president for the Rothermere interests, was effected recently for the benefit of the Quebec Paper Mills, Ltd., which were incorporated about the same time by provincial letters patent, with a capital of $13,500,000. With Frank Clarke, who heads the new company, the promoters also include several Montreal attorneys, but the head office will be in Quebec.

This transfer is preliminary to the construction by the same interests of a new pulp and paper mill within a few miles of the ancient capital, as, according to the terms of the lease, the successful bidder for the Manicouagan limits obligated himself to erect a mill within eight miles of one of the eighteen cities of the province, the idea of this clause being to give work to residents of cities and thus help to relieve unemployment. As to the probability of the mill being erected near Quebec City, this is evidenced by the fact that in the powers which have been given to the new company, provision is made that the company will develop and utilize powers for its operations in the counties of Quebec Centre, Quebec East, Quebec West, Portneuf, Chicoutimi, Champlain, Montmorency, Charlevoix and Saguenay, the limits being contained in the last-mentioned county.

It is intimated that the new newsprint mill which is under consideration by the Abitibi Power & Paper Co. will not in any case come into operation before 1927. The plan is still in its early stages and it is still undecided how much capacity the mill will have, as this will depend on the amount of power available after the new power development of the company has filled the present needs. It is expected that the new mill of the company, when it does come, will have a capacity of at least 300 tons of newsprint per day, increasing the output of the company to a total of about 800 tons per day.

Quebec Pulp & Paper Mills Co., Ltd., with capitalization of $7,250,000, was recently incorporated at Quebec. The new company is empowered, among other things, to acquire in whole or part, by purchase, lease, exchange, or otherwise, the property, franchises, undertaking, business or the captial stock, shares, bonds, debentures, notes and other securities of the Chicoutimi Pulp Company, Chicoutimi Port Company, La Cie. Générale du Port de Chicoutimi, Saguenay Pulp & Power Co., Chicoutimi Freehold Estates, Ltd., and Saguenay Light & Power Co., and also the capital stock, shares, bonds, debentures and other securities of the Roberval-Saguenay Railway Co.

J. D. McArthur Interests Get Manitoba Limits

J. D. McArthur acquired pulpwood berth No. 2 in Northern Manitoba at public auction on December 16, the price being $2 a cord above the required 80 cents a cord for spruce pulpwood. G. R. Gray, of Sault Ste. Marie, Ont., acting for the Spanish River Pulp and Paper Mills, Ltd., was the only other bidder.

The contract calls for the selection of not more than 3,000,000 cords of spruce pulpwood, for which the McArthur interests have undertaken to pay the Federal Government the sum of $8,400,000 by the time the specified amount of timber has been removed from the area.

They will spend about $5,000,000 within three years on the construction of a 200-ton newsprint mill, and about three-quarters of their production will be exported, which will mean that over $3,000,000 of outside money will be going into the Province every year.

After the deal was put through, it was rumored that the bid had been forced so high that establishment of the paper mill would have to be temporarily abandoned, but this was promptly denied by J. D. McArthur.

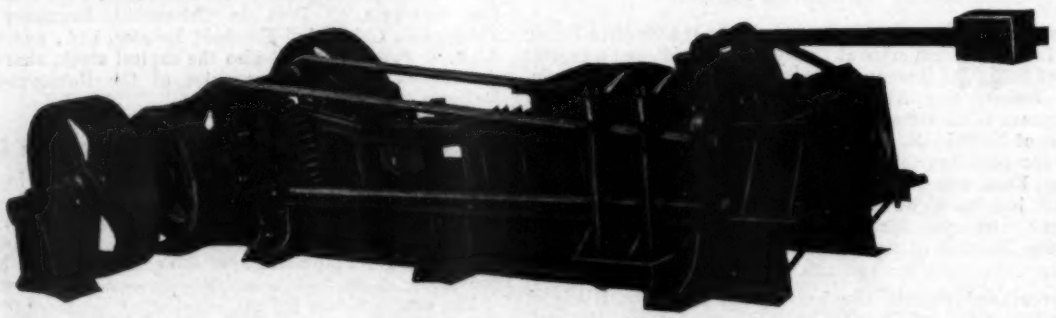
Mr. John Mather, of the Becker Woodpulp Company, New York, has sailed on the Berengaria for England, and Scandinavia, and expects to be away for six weeks.

AMONG other characteristics, our Beating Engines are noted for their good circulation and extremely sturdy construction

All sizes, Wooden or Iron Tubs

THE NOBLE & WOOD MACHINE COMPANY
HOOSICK FALLS, N. Y., U. S. A. Canadian Builders, Port Arthur Shipbuilding Co., Ltd., Port Arthur, Ont.

Repeat Orders Prove Success of the



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GIANT NEKOOSA BARK PRESS

Prepares Bark for Fuel 52 Per Cent Dry

NEKOOSA MOTOR & MACHINE CO., Nekoosa, Wis.

Plans Taking Shape for Annual Convention

At the annual meeting of the Canadian Pulp and Paper Association, which will be held here on January 30th, Sir John Willison, of Toronto, will be one of the speakers at the dinner. E. W. Beatty, president of the Canadian Pacific Railway, will also likely be present and deliver an address.

One of the big features of the Technical Section program for January 28-29, will be a paper by Mr. Taylor, of Toronto, one of the foremost steam power men of the day, who has just returned from an extensive tour of England and the Continent, giving special attention to pulp and paper mills.

The St. Lawrence Paper Mills, through their engineer, F. O. White, recently advised the City Council of Three-Rivers, Que., that the company intend to double its present plant in Three-Rivers in order to get a daily output of 300 tons of news print. As a condition, the company asks the city to close Notre Dame Street in the vicinity of the mills, such action having been arranged before the St. Lawrence Paper began building their present mill. The street has since remained open in spite of numerous protests from the company.

The new straw pulp industry, which is to be established in Winnipeg, will go ahead, it is reported, and the necessary financing is progressing satisfactorily. The company is being formed for the purpose of manufacturing pulp and paper from straw by the De Vains process, which is being operated successfully in France, Belgium and other countries.

The Nipigon Corporation, whose groundwood mill is located at Nipigon, Ont., state that they are operating five days per week, at 40 tons capacity, and their supply of pulpwood is sufficient until next year. Prices are much lower than during the corresponding season in 1923.

William I. Bishop, Ltd., of Montreal, have been awarded the contract for the entire construction work on the new Lake St. John paper mill of Price Bros., at St. Joseph d'Alma, Que. The mill is to be completed by December 15, 1925.

Valuable Work at Paper Making School

The School of Paper Making at Three-Rivers, Que., was organized only a year ago, but already its possibilities are showing up very strongly.

At the "bonne entente" meeting of the Society of Chemical Industry and Société de Chimie Industrielle, held in Montreal on December 15th last, E. Fleury, professor of chemistry at the school, read a paper on a "New Method of Control of Cooking in the Sulphite Pulping Process." The method, which the author described at length, is based on the rate at which the lignin, gums and resins are dissolved out, and this is followed by measuring the color of the liquor under specified conditions by means of a Hess-Ives tint-photometer.

The method has been tried out in mill operation, and like all new departures, has its advocates and its opponents. In private conversation, Professor Fleury informed the writer that he had run strength and bleach consumption tests on pulp obtained in one hundred commercial cooks run in the usual manner and found only two pulps which had the same characteristics; while on the other hand similar tests run on pulps obtained from one hundred commercial cooks which had been controlled by the new method showed that eighty four of the cooks gave pulps having the same strength and bleach tests.

The many friends of G. C. Hurdman, of Toronto, who is associated with Abitibi Power & Paper Co., and for many years was in the wholesale lumber business in Ottawa, will sympathize with him in the death of his mother, Mrs. George Hurdman, who died at the residence of her son-in-law, Dr. Fischer, Philadelphia. Interment took place at Ottawa.

Ernest Boily, 26, is dead and another man was badly burned about the head and hands as a result of a steam pipe break which occurred in the furnace room of Price Bros. & Co.'s mill at Kenogami. All the machinery of the mill was stopped for four hours as a result of the blow-out.

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The Rhoads Factory uses Watershed Tannate on such drives because it pays to do so.

Watershed Tannate gives us greater output with less care and trouble. It should do the same for you. Try it under the Rhoads guarantee. The leather belt that runs in water and gives the power.

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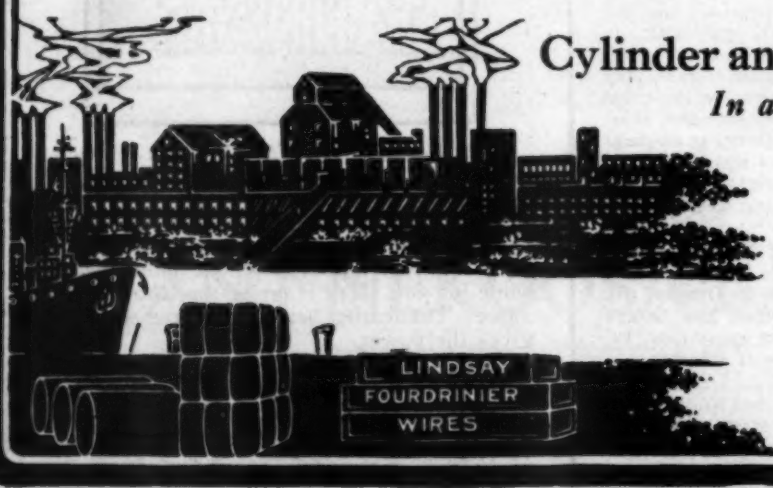

Cylinder and Washer Wires
In all Meshes

The Lindsay Wire Weaving Company

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Shawinigan Company to Carry on Reforestation

That reforestation as a definite factor in the economic life of St. Maurice Valley has come to stay is emphasized by the decision of the Shawinigan Water and Power Company, Limited, to commence planting denuded timber lands in the Valley, particularly those adjacent to the water powers on the St. Maurice River. The primary object is to stop erosion of the banks of the river and other lands.

The work will start this spring on Melville Island, opposite the town of Shawinigan Falls, and while the company has not committed itself to any period of time it will carry on the work as it seems suitable. Clearing of the lands on which it is intended to plant this year has already been started, the work being under the immediate control of Henri Dessaulles, who is the company's agent at Shawinigan Falls. While the work is not being carried out from a lumberman's point of view, it is realized that it is bound to show a benefit to the forest resources of the province.

C. R. Whitehead, president of Wayagamack Pulp & Paper Co., sailed for England last month. There is every reason to believe that Mr. Whitehead is going abroad on official business of the company, and that while in London he will complete any details that may be pending on connection with the loan of 400,000 pounds sterling which was successfully negotiated there for the building and equipment of the company's newsprint mill. It is understood that arrangements are well under way for giving out the contracts and making an early start on the work next spring.

W. J. Trimble, of Toronto, has been awarded the contract of repairing the bag room of the Lincoln Paper Mills, at Merritton, Ont., which was damaged by the explosion of the boiler room some time ago. During reconstruction the output of the plant will not be interfered with.

Former Riordan Manager Dead

Mr. Tom H. Taylor, who for nearly thirty-five years was business manager of the Riordon paper mills, at Merritton and Hawkesbury, Ont., died at his residence in Westmount, last month. He was 84 years of age and had been a resident of Montreal for twenty-five years.

Mr. Taylor was widely known in the paper industry, his company doing business with newspaper plants from coast to coast. In 1900, he entered business for himself as manufacturers' agent, from which he retired fifteen years ago. Interment took place at St. Catharines, Ont.

L. R. Wilson, president of the Abitibi Power and Paper Company, Ltd., made a ten-days' tour of inspection of the company's properties in Northern Ontario. He went north particularly to look into the company's planned power development at the Long Sault. It is planned to get this work under way as early as possible in the spring and to have power ready for delivery early in 1926. About 30,000 horsepower can be developed at this site, which is owned in fee simple by the company.

F. A. Fish has been appointed manager of the Davies Pulp and Paper Company, Thorold, Ont., who have started manufacturing groundwood in the Davies portion of the Foley-Riegler Pulp and Paper Company's plant, which had been idle for some months.

Victor Wainio, aged 43 years, an employee of the Spanish River Pulp and Paper Mills, Ltd., Sault Ste. Marie, Ont., was drowned while taking out pulpwood at Point Harbor in Lake Superior a little while ago. He was crossing in his canoe to another camp when his canoe upset and he was drowned before help could reach him.

Retain Stumpage Dues

Notwithstanding the plea made by limit holders seeking a decrease in the present rate of stumpage dues and a return to the 1918 tariff, it was decided at a recent meeting of the Quebec cabinet, followed by a conference between Premier Taschereau and Hon. Honoré Mercier, Minister of Lands and

IN THE FIRST PLACE -

CAMACHINES are designed by men who know slitting and roll-winding machines from the ground up. Years of experience - a quarter of a century all told - have enabled us to refine and standardize the design of CAMACHINES, until today a complete line of roll-winders is offered to the paper industry with fullest confidence that in design, workmanship and capacity for hard, continuous service they are second to none.

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May we tell you how CAMACHINES have kept pace with the needs of the paper industry, and how the right slitter and roll-winder will save you money by speeding up production and cutting down waste? Just drop us a line.

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61 Poplar St., Brooklyn, N. Y.
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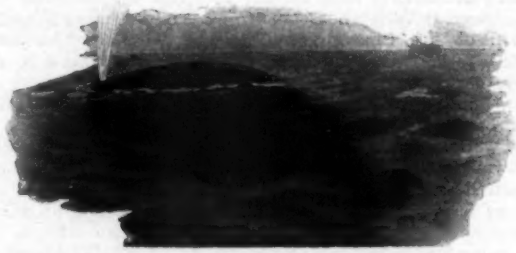
MINNOWS OR WHALES?



What would you think of a whaler who consumed all his time chasing minnows while whales were escaping unnoticed?

There is only a "minnow" difference in price between an ordinary wire and an accurately woven Tyler Wire, but there is a "whale" of a difference in the amount and quality of paper made, labor costs, overhead, and ultimate profit.

In the purchase of Fourdrinier Wires, isn't it more important to think of the big thing, namely, the profit that will result, rather than of a small difference in price?

Remember that the Fourdrinier Wire is an important factor in determining the quality, the uniformity, the formation, the strength, and the amount of paper produced by your Fourdrinier Machine. The return on your entire plant investment is determined very largely by the service given by the Fourdrinier Wire.

Tyler Fourdrinier Wires have an earned reputation for long life, for making uniform paper, for making more paper, and for increasing the productive hours of the Fourdrinier Machine.

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Increased toughness combined with increased cushion are found in the new

S. & W. PRESS ROLL COVERINGS

Stand up longer between grinding—They take out more water—
Are easy on the felts

STOWE & WOODWARD COMPANY

The Rubber Roll Makers

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Top and Bottom Wet Felts for board machines, with all the qualities requisite to insure long life and continuous production.

They Satisfy

Forests, to take no action for the present, but to deal with the situation later according to the conditions which may reign in the lumber world.

In the case of pine and spruce used for lumber purposes there is a delay until June next in any change on the present tariff. As far as pulpwood is concerned, through a decrease in the size of the cord from 600 feet to 500 feet it is estimated that the dues will be reduced by about 15 per cent.

A study of the conditions in each case affecting burnt timber will be made before any reduction can be granted, according to the decision reached by the government.

H. G. Schanche, who is in charge of the forestry department of Abitibi Power & Paper Co., Iroquois Falls, Ont., has been advanced to the grade of senior membership in the Society of American Foresters.

N. B. Power Commission Sued for $750,000

Preliminary stages of the hearing of an arbitration claim for $750,000 by the Inglewood Pulp and Paper Co., Ltd., for land expropriated by the New Brunswick Electric Power Commission to develop the Musquash hydro-electric project were completed some time ago before Mr. Justice Leblanc at St. John, N. B.

The claim is based on two considerations: (1) value of the land taken in view of its development as a hydro area, $600,000, at least; (2) damages by severance of this area from the other holdings of the company, $150,000. Counsel for the Commission were not satisfied with this mere statement and wanted more information, so that the case was adjourned to permit counsel for the plaintiffs to file particulars.

During the general reconnaissance and inventory of the forests of the northern section of the Province of Quebec, undertaken during the course of the past summer and autumn by Captain Quigley and his staff of aerial scouts, some 25,000 square miles of territory were inventoried. Roberval, on Lake St. John, was used as a base, and reconnaissances were carried out in all directions from this point. Captain Quigley recently expressed himself as well satisfied with the work carried out during the course of the season.

Hon. T. D. Pattullo, Minister of Lands, introduced amendments to the Forest Act in the British Columbia legislature recently. The amendments, which are generally of a minor character, provide, among other things, for amplifying authority of the Minister to compel resurveys of timber licenses where a number of old surveys have been defective and deficient.

Share Grand Falls Development with States

The hydro-electric developments which the New Brunswick Electric Power Commission are planning at Grand Falls, on the St. John river, will in all likelihood be used to operate the new plant which the Fraser Companies, Ltd., and associated American interests are reported to be about to establish at Madawaska, Maine, across the St. John river from Edmunston, N. B.

Because the St. John River is an international waterway, part of the power developed on it will have to be made available for use on the Maine side of the river. Initial costs of the development will be upwards of $4,000,000.

Evidence of the earning power of newsprint companies, even with considerable curtailment of output and price declines, is furnished in the paying off of all arrears of preferred dividends by St. Lawrence Paper Mills, Ltd. These accrued dividends amount to 12 per cent, as of December 31st, 1924. Payment will be made on January 15th to shareholders of record December 31st.

Keep Canadian Power in Canada

In an address delivered recently to the Young Men's Canadian Club, Premier Taschereau of Quebec made a strong and urgent plea for keeping Canadian hydro-electric power in Canada, instead of exporting it to the United States. By keeping our power and other natural resources in this country we will attract capital to develop them, and furnish employ-

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"Spartan" is a Graton & Knight Standardized Series belt. Replacing a "Spartan" belt simply means ordering another "Spartan." You get a belt which is a replacement in every way. A duplicate of the original. Weight. Thickness. Flexibility. Tensile strength. High coefficient of friction. In all a counterpart of the old belt and ready to repeat its faithful service.

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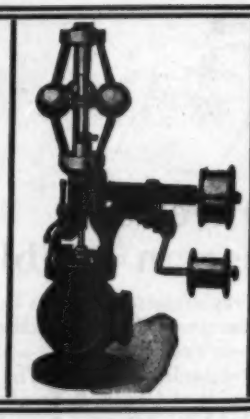

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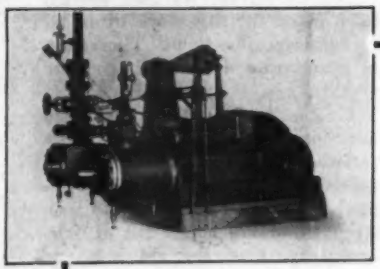

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It Costs NOTHING to Find Out How Much a

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Speed variations can be controlled electrically from anywhere in the mill.

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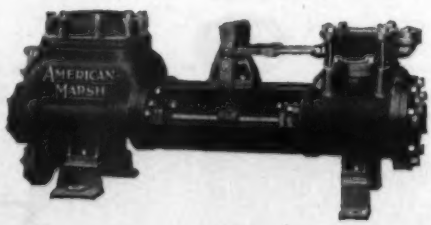

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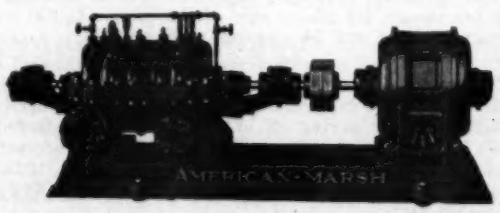

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ment for the population; but if we export our power along with our national resources, mills will be erected just south of the border to work up our resources and return them to us at a greatly increased price, and our population will follow.

The wonderful benefits which this country can derive from a proper policy of conservation of natural resources is exemplified in a striking manner by the phenomenal growth of the Canadian pulp and paper industry which followed the embargoes established by the various provinces on the pulpwood cut on Crown lands. Such benefits could doubtless also be obtained in other cases by following a carefully thought-out policy of conservation.

To Dam Gatineau River at Lake Cabonga

An important damming project will be presented to the Quebec Legislature at the coming session, and has to do with the construction of a dam on the Gatineau River, thereby regulating the flow of water and creating a large basin at Lake Cabonga, about 75 miles from Amos in the Abitibi.

The project is of particular interest to the pulp and paper industry in view of the rumored erection of a newsprint mill at Chelsea, Que., on the Gatineau river, near Ottawa, in case International Paper should take over part or all of the Riordon assets.

The Abitibi Power and Paper Co., Iroquois Falls, Ont., is purchasing over 50 per cent of its pulpwood requirements for the coming season from settlers in Ontario, and, in addition to the usual districts in Ontario, a new source is being tapped in Quebec in and around Makinik. The new logging railway built by the company has begun delivering wood to the mill. The frost and snow have given an impetus to pulpwood activities and splendid progress has been made.

Drops Party Politics for Embargo Banner

The St. Catharines Standard, which is published in the Niagara district, where there are many pulp and paper mills, has declared that it will abandon party politics at the next federal election and support whichever party is favorable to an embargo being placed on the export of pulpwood from private lands.

The paper says that "the issue is of vital interest to that district in which the manufacture of paper has been developed to a great degree of success. The people want to know why it is possible for a large paper plant to be built across the river to be operated on pulpwood from Canada's forests and to employ American workmen when a national policy for Canada, in regard to natural resources, would have made the Niagara Peninsula, with its wonderful waterways system, the logical location of such a large and important addition to the industry."

Quebec Forestry Engineers Hold Meeting

The Association of the Forestry Engineers of the Province of Quebec held its annual general meeting at Quebec on December 18th and elected the following officers for the ensuing year: President, R. N. Seaborne, Donnaconna Paper Co.; vice president, G. C. Piché, chief of the Provincial Forestry Service; secretary-treasurer, Laurent Garneau of the Provincial Forestry Service; executive council, Omer Lussier, V. Baillarge, Henri Kieffer, R. H. Wickenden and F. L. Decarteret.

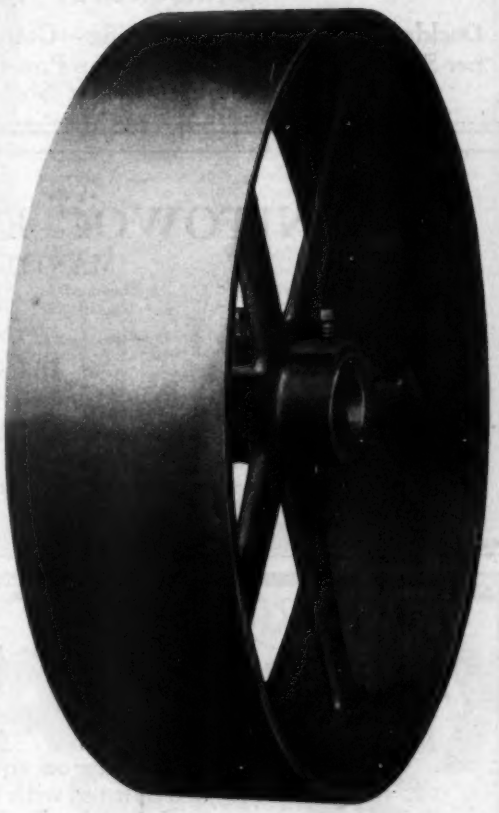
The engineers also named a permanent committee which will study technical problems.

Market for Canadian Fruit Wrappers in Australia

C. Hartlett, Canadian Trade Commissioner, Melbourne, Australia, in a letter to the Department of Trade and Commerce, Ottawa, says that recent inquiries made on behalf of a Canadian firm desirous of developing an export trade to Australia indicate that a fairly good market exists if Swedish competition can be met.

The total imports of such paper are now obtained from continental sources and are admitted free of customs duties. Fruit growers in Australia say that the prices they now have to pay are high and competition from Canada would be welcomed.

CAST IRON PULLEYS



Made especially to YOUR order and for YOUR job, will give you much more satisfaction and honest service than pulleys made from any other material. BECAUSE CAST IRON IS PERMANENT IN STRUCTURE and pulleys made from cast iron are true running and suited to a wider range of service than those of any other type.

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No Official Details on Fraser's New 200-Ton Mill

Archibald Fraser, president of the Fraser Companies, Ltd., Edmundston, N. B., returned recently from an extended trip to Europe, where he visited many lumber plants and pulp and paper mills in Scandinavia. Asked regarding the outlook for New Brunswick spruce overseas, he said that the market was not any too good and there was no sign of improvement that he could see, although he was told that conditions in Germany were somewhat better.

In regard to the report that the Fraser Companies will erect a 200-ton paper mill at Madawaska, Me., just across the river from Edmundston, N. B., which will utilize the output of the Fraser Companies' pulp mill at Edmundston, Mr. Fraser said that there was some talk about such an undertaking, but just at present he did not feel that he could enter into the details regarding it.

Two features which are still undecided so far as can be told from information which has leaked out to the public, are whether the conveyor, which will carry the pulp from the Edmundston pulp mill to the new paper mill at Madawaska will be an overhead affair or whether it will be underground and pass in a tunnel under the St. John River; and the other is what American interests are associated with the Fraser Companies in the project. It has been believed that the Brown Company, who now have great holdings in pulp and paper and power enterprises, both in the United States and in Canada, are associated with the Fraser Companies.

Arrangements for the formation of the Quebec Pulp and Paper Mills, Ltd., that will take over the Saguenay Pulp and Power Co., and its subsidiaries, are making progress, although several problems remain still to be solved. In the meantime, provision has been made for meeting not only the interest on the Saguenay bonds, but those of the Chicoutimi Pulp Co., in spite of the fact that the latter company is in liquidation. This interest is due on January 1st, and has not been passed by either company.

Low Taxation Conceded to Wayagamack

A by-law recently was submitted to the rate payers of Three-Rivers, Que., limiting the amount of taxes to be paid by the Wayagamack News, Limited, to $1,000 a year for a period of 10 years for the plant that the new company is to erect in that city at a cost of about $2,000,000. Only property holders voted on the by-law, which was approved by 478 proprietors representing a valuation of over $11,750,000 in properties, while 18 proprietors representing less than $35,000 valuation dissented.

The by-law will take effect from 1926 when it is expected that the new newsprint mill will be in operation.

The manufacture of pulp and paper mill machinery has become a flourishing Canadian industry. At the present time Charles Walmsley & Co. (Canada), Ltd., of Longueuil, Que., are working day and night and have sufficient orders on hand to keep the plant going at its present rate for the next eight or nine months. The machines now being made include three 234-inch paper machines, two of which are for Price Bros. & Co.'s mills at St. Joseph d'Alma and the third for E. B. Eddy & Co., at Hull, Que. For the Newfoundland Power and Paper Co., Ltd., a 120-inch wrapping paper machine is being constructed.

International May Take Over Riordon Assets

It is understood that the International Paper Co. is working on a plan by which it will take over not only the Gatineau properties of the Riordon Company, but everything that was included in the assets. This would mean the taking over of the Kipawa, Hawkesbury and Merritton mills, and the timber limits connected with these.

For a time there was a general belief that International, whose operations in Canada had been limited to timber limits and its newsprint mill at Three-Rivers, Que., would not desire to operate bleached sulphite mills such as those owned by Riordon. The output of these mills, however, could quite well be utilized in the fine paper mills owned by International in the United States.

Good progress is said to have been made recently in the negotiations between the two bondholders' committees and

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Write for the Ryerson Journal and Stock List —the "Key" to Immediate Steel

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The Albany Grease Trade Mark is on every can and barrel you buy—look for it. Comes in hard, medium and soft consistencies. Samples on request.

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714-716 Washington St., New York

WHEN MICHIGAN WAS ADMITTED TO THE UNION

WALDRON HAD BEEN MAKING MACHINERY
AT NEW BRUNSWICK, N. J., FOR TEN YEARS
MICHIGAN HAS GROWN SINCE THEN----SO HAS WALDRON

Waxed, Gummed, Creped, Coated, Glazed, Sized, and other Surface Treated Paper Machinery

Embossers, Cylinder Printers for Paper and Textiles, Drum and Slip Belt Winders, Festoon Machines

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"FRANCKE" FLEXIBLE COUPLINGS FOR MOTOR DRIVES

FOURDRINIER WIRES

Dandy Rolls *Cylinder Molds*
Brass, Copper and Iron Cloth
Bank and Office Railings

WIRE SIGNS

Cheney Bigelow Wire Works
Established 1842 SPRINGFIELD, MASS.

International Paper. That the 8 per cent bondholders will receive a very substantial security in return for the first mortgage bonds seems to be assured from the price at which the bond is selling in the market, namely, around 101. This, of course, covers the arrears of interest, which now amount to nearly 30 per cent.

President Graustein of International Paper has confirmed that negotiations are in progress with the Riordon interests, but denied rumors that have been circulated concerning the details of financing to be undertaken in this connection.

A recent addition to the Canada Paper Co. staff is Mr. Underhill, formerly with Vickers, who will have charge of plant and power at Windsor Mills.

Newfoundland Mill to Start Operations Shortly

L. Wright, office manager of Fraser-Brace Company, contractors for the big power plant of the Newfoundland Power & Paper Co., was in St. John, N. B., recently, en route for England where he intends spending several weeks on business and pleasure.

Mr. Wright stated the work on the power plant is proceeding satisfactorily. From Grand Lake a canal six miles long has been dug to Deer Lake, where the power buildings are located. Pipes measuring 9 feet 8 inches in diameter have been laid. Thirty miles of transmission line are being constructed to carry the current from Deer Lake to Corner Brook where the pulp and paper mills are situated.

Mr. Wright expected that part of the big mills at Corner Brook would be in operation early in February, and that they would be operating to capacity early next summer.

Work Starting on Norman Dam

Initial work of excavating 50,000 cubic yards of rock at the point where the Winnipeg river emerges from the Lake of the Woods will be undertaken without delay, according to a recent announcement made by D. McLeod, vice president of the Keewatin Power Co. Mr. McLeod estimates that the work will cost the Backus interests something like $1,100,000.

Before the end of the year the company contemplates doubling the output of the paper mill at Kenora, Ont., and also making extensive improvements to the power house. Close to $4,000,000 will be spent on these enterprises, it is stated. The output of newsprint will be increased to 250 tons a day.

An issue of 3,000,000 pounds sterling consolidated mortgage debentures, at 99 pound 10 shillings, carrying interest at six and a half per cent, is announced by Sir W. G. Armstrong-Whitworth & Co., Ltd., for the purpose of funding the floating indebtedness in connection with the Newfoundland Power and Paper Co.

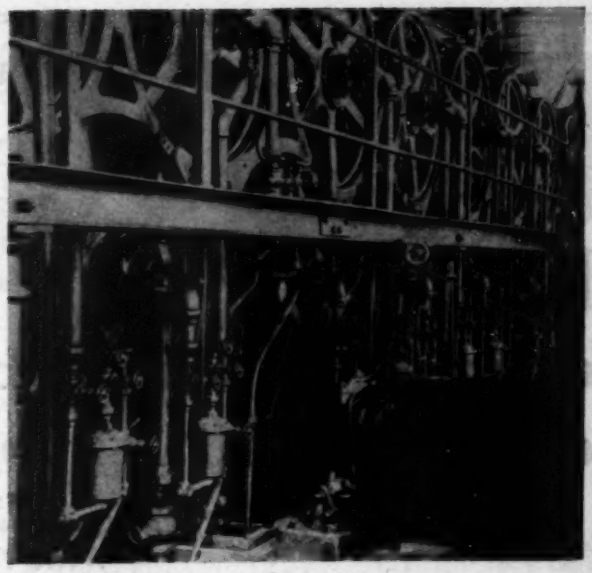
The contract for the addition to the pulp and paper mill of International Paper at Three-Rivers, Que., has been awarded to Fraser-Brace Engineering Co. of Montreal. Work will be commenced immediately and pushed to completion as rapidly as possible.

As in past years, at Christmas, the Abitibi Power & Paper Co. presented a turkey to every employe of the company, whether in the mills, woods, merchandising, townsite, forestry, or transportation departments, who is a householder living in Iroquois Falls, Ansonville, or Little Canada.

At a meeting of the board of directors of Howard Smith Paper Mills, Ltd., held in Montreal last month, the usual quarterly dividend of 2 per cent on the preferred stock of the company was declared.

Miss Jones, of the staff of the Interlake Tissue Mills, Toronto, has returned after an extended visit to England, where she spent several weeks on a holiday.

I. H. Weldon, president, and S. F. Duncan, treasurer of the Provincial Paper Mills, Ltd., Toronto, recently inspected the company's mill at Thorold, Ont.



Beg Pardon!

The last Armstrong ad that appeared in Paper Industry should have been illustrated with the photograph that appears above instead of the picture that was used, a picture of an Armstrong Trap applied to a corrugating machine.

ARMSTRONG MACHINE WORKS
322 Steam Saving Street
Three Rivers, Mich.

Pi-If-Bis

Armstrong Steam Trap

DUXBAK

LEATHER BELTING

efficient durable economical

an ideal belting for paper mill drives

—our series of "Quality Facts about Belting" tells you why Write for them

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Thoroughly Waterproofed and Built for Service

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Branches and Distributors in All Leading Cities

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Send for catalogue

BARRE GRANITE IN PRESS ROLLS

Is Revolutionizing the Whole Paper Making Industry

If your Paper Machines are not equipped with Press Rolls of BARRE GRANITE you are not getting the results that you should get, for it is a recognized fact that granite rolls are much superior to any others and Barre Granite the best of all. Let us tell you about them.

Jones Brothers Company

BARRE, VT. **BOSTON, MASS.**

Wisconsin News

January 1, 1925.

Vocational Education

The vocational educational classes for the year 1925 at the plants of the Nekoosa Edwards Paper Co. have been started.

A little different arrangement has been provided this year than was used during the preceding three or four years. This year's classes will only have two subjects:

1—**Steam.** This class has been organized with thirty-two having signed up for the course. This year's work will include mostly boiler and furnace study, thus enabling those interested in this class of work to study just those things with which they are working. This class is being taught by one of the university professors, working in conjunction with the company officials.

2—**Paper Making.** During the past year, the University Extension Division of Wisconsin has gotten out a practical course for those wishing to know more about the manufacture of paper. This course is one that can be understood by the average workman and deals with all the phases starting in on the beater operations and following the thing through the Jordans, the wet end of the paper machine, the presses, dryer, calenders, slitters. This course is known as their Course 246-B, and this work will be carried on as in former years.

The problems and lectures are supplied by the Extension Division, and the papers are sent in to Madison for correcting, where notations are made, so that everyone can see just where he is getting. About 70 men have enrolled for this class, and they are all very enthusiastic over this course.

The Nekoosa Edwards Paper Co. have been very active in the vocational educational work for some years past, and they feel that this new paper making course recently gotten out by the Extension Division is one that the men are going to get some real benefit from, one that will hold their interest from start to finish, and one that will benefit the company considerably as each man gets deeper into the course.

The fee charged by the University for these courses is paid for by the men, and when the course is completed, the Company refunds to the men the money paid for the course.

The State Board of Vocational Education of Wisconsin are starting in to work with the Forest Products Laboratory and the paper mills to start something along the vocational lines in the schools. We shall hear more about this at a later date.

It would be interesting to know what other mills are doing in vocational education for their employees.

Big Pulp and Wood Shipments

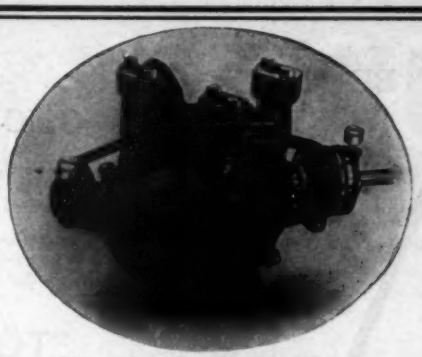
More than $800,000 worth of Canadian pulpwood and groundwood pulp, chiefly for the mills of the Consolidated Water Power & Paper Company in Wisconsin Rapids, Biron, Stevens Point and Appleton, Wisconsin, were imported through the port of Ashland during the past season, according to official estimates made there.

Five immense rafts of pulpwood were towed across Lake Superior from Port Arthur, Canada, to Ashland and fourteen barge loads of material came via the same route. The rafts were of small spruce logs, and made port with no loss.

Two large car ferries, formerly the "Ontario" and "Michigan" from Detroit and Windsor, were rebuilt and transferred to the pulp trade, handling ground unbleached pulp. The product unloaded on the Ashland docks, via the Ashland-Port Arthur route, came to Wisconsin at a large freight saving, according to experts at Ashland. Formerly it went by rail west from Port Arthur, via Fort Francis and Duluth.

Immigration Bureau's Active Interest in Forestry

Wisconsin's immigration and state development bureau has turned over a new leaf, and is giving more consideration to certain logical uses of cut-over lands and forest areas outside of the realm of agriculture and more food production. The paper and pulp industry comes in for a great deal of attention and analysis in the annual report of B. G. Packer, immigration officer, who plainly states that it is a hopeless and impossible job to carve farms out of certain types of land in the northern counties of Wisconsin. It is the first time on record that a bureau devoted for years to colonization of a cut-over region has faced the real issue squarely in an effort



Motor driven Jennings Hytor Vacuum Pumps for removing air and water from paper dryers.

Efficiently removing the air and water from the dryer

To function properly, the dryer should be free from air and water. Otherwise, in the attempt to secure the necessary circulation, steam is likely to be wasted from the dryer.

Effective removal of the air and water is now being accomplished in many mills by means of the Jennings Hytor Vacuum Pump, consisting essentially of two independent pumps built into a single casing—one for handling the air and the other the condensation. Before entering the unit, the air and condensation are separated in a receiver under vacuum.

The Jennings Hytor is unsurpassed for the purpose. It consumes only one-half the power and correspondingly one-half the amount of other vacuum pumps of equivalent capacity, and is absolutely reliable and positive in operation. There are but two moving parts, the pump impellers. No complicated parts like valves, gears, pistons, etc., to get out of water.

Jennings Hytors are furnished either for continuous operation or for automatic operation, controlled and regulated both by the water level in the tank and by the vacuum in the dryer.

For further information, write for Bulletin 15.

NASH ENGINEERING CO.

So. Norwalk Connecticut

New England Representative:
Mr. Gilbert Howe Gleason, Nottingham Building, Copley Sq., Boston

Western Representative:
Mr. Thomas H. Savery, Jr., 1524 Republic Bldg., Chicago

Jennings Hytor

RETURN LINE AND AIR LINE VACUUM PUMPS CONDENSATION AND CIRCULATING PUMPS

BE READY FOR THAT PIPING JOB

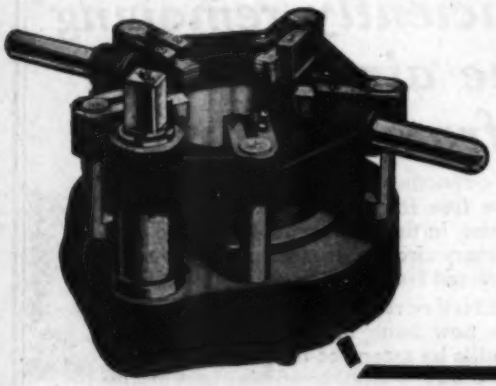
When the emergency job arises or there is a change to be made in the piping, be prepared to handle the work easily and quickly.

You can do it with "Toledo" threading and cutting tools, and you will be surprised at the ease and speed with which the work can be accomplished.

"TOLEDO"

"TOLEDO" No. 1A
Threads 1" to 2"
List Price $30.00

"TOLEDO" No. 2
Threads 2½" to 4"
List Price $100.00



"Toledo" pipe threading and cutting equipment is the last word in pipe tools. They are portable, easy to operate, one-man tools that will reach the most inaccessible piping jobs.

They will quickly prove their worth about the paper mill.

A post card will bring you our complete catalog.

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, O.
New York Office, 50 Church St.
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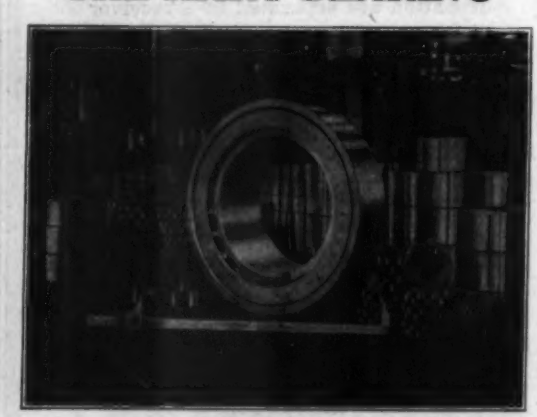
A. B. JARDINE & CO. HESPLER, ONT.

THE HART BEARING

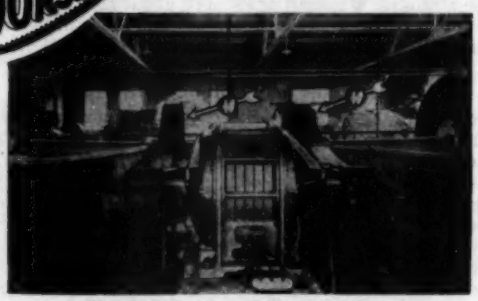


If you have bearing troubles we are prepared to help you. Nothing too large or difficult. Our bearings are standard and extensively used in paper machinery.

Let our engineers solve your problems.

The Orange Bearing Co.
ORANGE, N. J.

MORSE SILENT CHAIN DRIVES



Five 80 H.P. Morse Drives for beaters.

Solves beater drive problem

Unlike other drives, Morse Silent Chains run slack, even on short center distances, thereby doing away with needless journal friction and the waste of power it always involves.

Morse Drives are sufficiently flexible to absorb shocks and jars due to starting, stopping and sudden overloads. Motor armatures, bearings and other rotating parts are protected against unnecessary wear and tear.

Where beater rolls are likely to jam, shearing pin sprockets are recommended.

MORSE CHAIN COMPANY, ITHACA, N. Y.
There is a Morse Engineer near you

Atlanta, Ga.	Cleveland, Ohio	Philadelphia, Pa.
Baltimore, Md.	Denver, Colo.	Pittsburgh, Pa.
Boston, Mass.	Detroit, Mich.	San Francisco, Cal.
Charlotte, N. C.	New York City	St. Louis, Mo.
Chicago, Ill.	Minneapolis, Minn.	Toronto, Winnipeg

2225-30

to make the most of what nature intended the land to produce with least risk and quicker returns to the greatest number.

After spending more than six months' time in personal investigation of wood working and pulp and paper crafts in the state, Mr. Packer has filed his report with the governor, and will later take it up with the state legislature. He is now engaged in carefully mapping the northern counties to define the percentages of soil types suitable for farming, forestry and pulp wood production. He recognizes the fact that for several years settlers have earned more than half of their living in paper mills and cutting pulp wood, and he proposes to quit trying to make starveling farms on locations best suited for successful paper manufacture. He has enlisted the aid of the state manufacturers' association, lumbering interests, and paper mill operators to get the facts before the proper authorities. He believes that the dearth of pulp, or its possibility in the near future, is far more imminent than a lack of milk, hogs or grain, which means that it is his opinion that attempting to farm unsuitable acres is worse than folly.

Wisconsin's growth in paper making has been rapid and astounding since the first trials were made in the Fox River valley by Bradner Smith of Appleton, in 1871. There are now in operation 60 paper and pulp mills in 32 towns, with invested capital of 118 million dollars. They employ about 17,000 people, pay out more than twenty million dollars in wages, manufacture close to 800,000 tons of paper and use 1,086,616 cords of pulp wood annually. Printing and wrapping paper are the biggest single items made. For every ton of cheese made in Wisconsin in 1923, there were six tons of paper made, and for each ton of butter there were 10 tons of paper turned out.

Turning to the present resources, the Forest Products Laboratory at Madison estimates that the total stand of hemlock in the state is 32 million cords, of which 20 per cent is now available for pulp. The stand of poplar is five million cords and of spruce about one million cords. The mills of the state take about 3,000 cords of pulpwood every day in the year. About 400,000 cords of spruce pulp wood were imported from northern Minnesota state-owned lands to Wisconsin mills last year at $10 a cord.

In his interviews with pulp buyers and paper makers, Mr. Packer got varied opinions on the supply and demand, but almost unanimous opinion that it is high time to look into the future and lay plans accordingly.

One buyer in the Fox River region complains that he is not getting the quantity of pulp wood he did five years ago, that the quality is poorer and the hauls longer. The reverse is stated by a Menasha user of tamarack, balsam and jack pine for paper board, rugs and tape. He claims that they never had more pulpwood offered to them than was the case last year. However, he believes that by keeping the fires down and tending to reforestry matters any possible scarcity will be overcome. Another buyer said they pay $8 a cord for stuff that cost but $4 a cord in 1911, not including spruce. This man admits that he does not know where the pulpwood will come from 25 years hence. "Unless something is undertaken by a unity of agencies some of the mills will wake up with a jar about 10 years from now," he concludes.

Quite a lobby of paper interests will no doubt be spokesmen for any measure which may come up to give the agencies of the state further power to carry on education and investigation.

Northern New York News

January 1, 1925.

Frank L. Moore Buys Paper Mill

Frank L. Moore of Watertown, one of the best known paper manufacturers in Northern New York, has purchased the control of the Westfield River Paper Company at Russell, Mass. The purchase includes all of the 10,000 shares of common stock of no par value and about half of the outstanding $125,000 issue of preferred stock. He has taken possession. The purchase not only includes the mill but two water powers capable of the development of 4,000 horsepower on the Westfield river. The mill and main offices are located at Russell, about 18 miles from Springfield on the Boston & Albany railroad.

Glassine or paper glass, a specialty of the highest grade, is

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Protection of metals regardless of conditions

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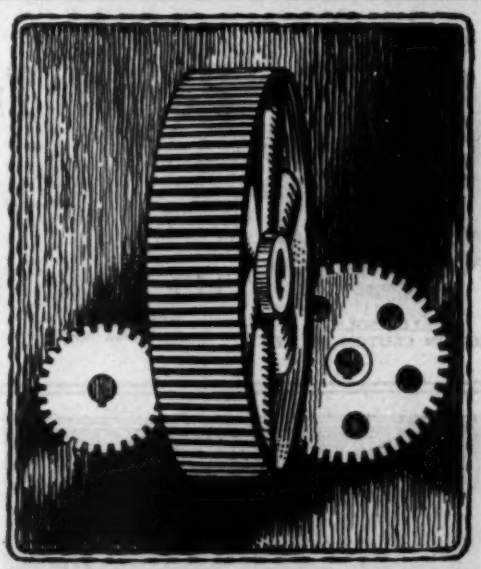

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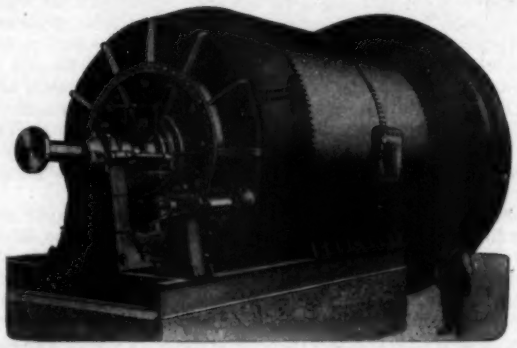
From Jack-ladder to acid room!

To keep that stock of timber moving at less expense join your belting to keep on the job. From pulp-lap to finished product Crescent Belt Fasteners keep every belt on the job. No breakdowns, loss of time, labor or money. A complete treatise on "Proper Belt Joining in the Paper Mill" and "Ready Reference Chart" is ready—send for it. Crescent Belt Fastener Co., 247 Park Avenue, New York.

CRESCENT
BELT FASTENERS

LEFFEL
TURBINE WATER WHEELS



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All of our turbines are designed and built to suit location and requirements, by engineers and experts who have had years of experience in this particular line of work. Turbines fully guaranteed.

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FALLS SOLID FRICTION CLUTCH PULLEY

Power Transmission Machinery
FOR
BELT AND ROPE DRIVES
MANUFACTURED BY
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Steel Plate Construction
Steel Storage Tanks, Blast Furnaces, Gas Holders
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HAMLER BOILER AND TANK CO.
FABRICATORS OF STEEL PLATE FOR OVER SIXTY YEARS
SEND DRAWINGS AND SPECIFICATIONS FOR PRICES
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Reduce fuel costs by making use of waste exhaust gases to preheat the boiler feed. Patented construction proven by 25 years of service.

FOSTER

SUPERHEATERS
Improve engine, turbine and boiler economy by enabling a given amount of steam to do more work. Over 10,000 installations in stationary power plants.

POWER SPECIALTY COMPANY, 111 BROADWAY, NEW YORK

Boston Pittsburgh Detroit Kansas City Dallas Chicago Boulder Los Angeles San Francisco London, Eng.

manufactured at the mill, and the company furnishes the United States Envelope Company with the paper used for window envelopes, and several other concerns as well.

Mr. Moore will continue to make his home in Watertown for the present, but eventually he will move to Springfield. He becomes president and general manager of the company, and Karl Becker who has been with the company since 1916 will remain as vice president and general manager.

In addition to the paper used in the manufacture of window envelopes, the Westfield mill makes transparent papers of various colors and in embossed and brocaded patterns, with gold, silver and platinum surfaces. These papers are used for covering and lining containers for gloves, cravat and other high-grade merchandise. Mr. Moore is working on the perfection of a grade of paper that will be a substitute for tin foil.

The mill is equipped with three 1,200-pound beaters, two refiners, one 96-inch Fourdinier machine, trimming 78 inches, and the capacity of finished paper is 15,000 pounds a day. Eventually Mr. Moore intends to install a second Fourdinier which will double the capacity of the plant. The mill has been in operation several years, but up to 1916 it was devoted to the manufacture of book paper.

Mr. Moore organized the Raymondville Paper Co., now a part of the Carlisle group, and in 1900 became treasurer and general manager. In 1907 he went with the Newton Falls Paper Co., which was in financial difficulties, and reorganized it into a paying proposition. In April, 1920, Mr. Moore, who was president and general manager of the Newton Falls Company, and one of its heaviest stockholders, disposed of his interests to the United Publishers and the McGraw-Hill Corporation of New York, publishers of magazines. Since that time he has been engaged in various enterprises with which he has been connected, but has been on the lookout for an opportunity to get back in the paper business. Within a week after hearing of the opportunity to purchase the Westfield mill he closed the deal. His son, Paul Moore, who has been connected with the Mohawk Paper Mills at Waterford, N. Y., will be associated with him. Mr. Moore was for several years president of the Empire State Forest Products Association and for two years he was president of the American Paper and Pulp Association. His knowledge of the paper and pulp industry has required his presence in Washington many times in regard to tariff matters, and at Albany in connection with the drafting of bills relating to forestry and water storage.

Taggart Brothers Company Expands

Beginning with the first of this year, the Taggart Brothers Co., Inc., will take over the Herrings mill which it recently purchased from the St. Regis Paper Company. The Taggart Brothers Co., Inc., was granted a certificate of incorporation in Albany a short time ago. In addition to the Herrings mill, formerly owned by the St. Regis Paper Co., it takes over the mill and the Taggart Brothers Co., in Watertown. The new corporation takes over the property rights, privileges, franchises, good will and name of the Taggart Brothers Co., which was incorporated in 1886. The papers as filed state that the number of shares that may be issued is 110,000, of which 10,000 are to have a par value of $100 each and 100,000 are to be without par value.

The nine directors are as follows: B. B. Taggart and Jacob F. Amos of Watertown, Floyd L. Carlisle, R. K. Ferguson, William Versfelt, William Hull, Jr., Harold S. Sutton, Delano Andrews and J. J. M. Scandrett, all of New York. The members of the board of directors of the Taggart Brothers Company before the reorganization were B. B. Taggart, J. W. Taggart, C. W. Miller, R. A. Amos and Jacob F. Amos. A number of the new members of the board are identified with the Carlisle interests.

It is estimated that about six months will be necessary to convert the Herrings mill to the manufacture of paper bags from jute stock.

To get the new plant fully equipped, it is expected that a half million dollars will be required.

The Taggart Brothers mill in Watertown has been turning out about 25 tons of paper a day. The machines are run at a low speed as strength is required. The stock is made up into

Keep Ahead
of the
Paper Machine

get more out of it—more profits—by running it on *group drive* with *waterproof leather belts.*

Fewer breakdowns, less electrical loss and less complicated "mechanics" are some advantages of group drive over individual motors.

Waterproof leather belts have a longer life and cost you less per foot, per ton of paper produced, per year, than any substitute.

Put one man in charge of belting care. He'll save twice his salary by preventing shut-down losses alone.

Read this:

We have reprinted a pamphlet of plain and practical talk by Robert W. Drake, electrical engineer of the McCormick International Harvester Plant on "When to Use Group and Individual Drives".

Mr. Drake knows drives and belts—if greatest efficiency at lowest cost is of interest to you, use the coupon TODAY.

LEATHER BELTING EXCHANGE
Philadelphia, Pa.

Nothing takes the place of
LEATHER

Address LEATHER BELTING EXCHANGE 8
417 Forrest Building, Philadelphia, Pa.

Please send me a free copy of "When to Use Group and Individual Drives" by Robert W. Drake, electrical engineer of the McCormick International Harvester Plant.

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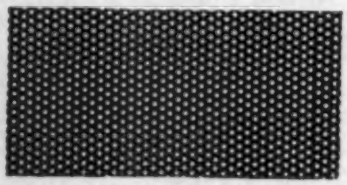
Read the "ROBERTS IDEA"

Perforated Metal Screens for Pulp and Paper Mills



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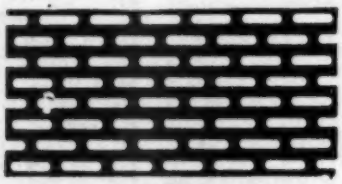
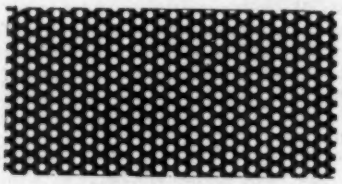


⅛ x ¾" Slots



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Central Manufacturing Co.

The Quick Service House

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UNION SCREEN PLATE CO.

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UNION BRONZE SCREEN PLATES

(Best phosphorized Cast Metal)

Old Plates RECLOSED and RECUT to accurate gauge
UNION BRONZE SCREWS for Screen Plates
Immediate Delivery of the Largest Orders. Satisfaction Guaranteed

The Witham Screen Plate Fastener, Patented

THE ORIGINAL THE BEST

Remember

WM. A. HARDY & SONS

FITCHBURG, MASS.

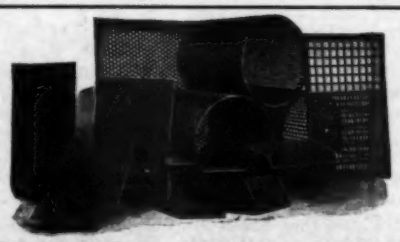
Originators and Oldest Manufacturers

OF THE

Cast Bronze Screen Plate

ALSO SPECIALIZE IN

Acid Resisting Digester Parts



PERFORATED METAL SCREENS

in all metals for pulp and paper mills
Elevator Buckets (Plain and Perforated)
Conveyor Flights and Trough
General Sheet and Light Structural Work
Light and Heavy Steel Plate Construction
Write for perforated metal handbook

HENDRICK MFG. COMPANY

Main Office and Works 51 Dundaff Street Carbondale, Penna. 30 Church Street New York City 934 Union Trust Building Pittsburgh, Penna.

bags at the mill and they are printed ready for use. Owing to the increase in business the three machines in the mill were unable to handle the orders and expansion became necessary.

Deeds filed in the county clerk's office in connection with the reorganization indicate that the transaction involved $1,550,000. The deed involving the transfer of the Herring mill from the St. Regis Paper Company was for $550,000, and the other million represented the transfer of the Taggart Brothers Co. mill in Watertown.

A big government reforestation project is expected to be under way in Jefferson county during the coming year. The war department and the United States Department of Agriculture have worked out a plan for the reforestation of Pine Plains, located between Watertown and Carthage.

Several years ago the government purchased approximately 12,000 acres in that section to be used as a site for army maneuvers. The land is of a sandy nature and is unsuited for nothing but the growing of trees. A board of army officers made an extensive survey of the region. The reforestation project would in no way interfere with the use of the camp for military purposes. Reforestation will be accomplished by natural seeding and by transplanting.

Arvin R. Paull Dies

Arvin R. Paull, aged 51, vice president and founder of the General Screen Corporation of Utica, died at his home in that city Dec. 11. His death was very sudden, Mr. Paull having been in his office the afternoon of his death.

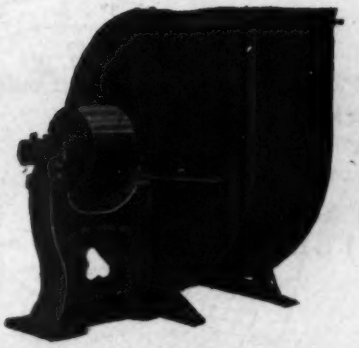
Mr. Paull was connected with a number of paper mills in and around Watertown and was the inventor of the rotary screen which has been very successful in paper manufacture. He founded the company for the manufacture of the screen in 1917 and located in Utica. He began work in paper mills when young and was employed in the mills at Black River ten years, later going to Canada. He was also a salesman of paper mill products. He conceived the idea of a rotary screen and put his ideas into practice. About three years ago Mr. Paull went south and became interested in the manufacture of paper from sugar cane, after the sugar had been extracted. He organized a company in New Orleans for this purpose, but his main activities were connected with making and marketing the rotary screen.

The plant of the Standard Wall Paper Co. of Schuylerville was totally destroyed by fire December 23. The loss is estimated at $1,500,000. The fire started in the varnish room from an electric spark which ignited a pail of varnish. Owing to the highly inflammable quality of the material nothing could be done to save the building. Two hundred and fifty employees were forced to flee, many of them being unable to get their wraps from the locker rooms. Fire departments from Saratoga Springs, Greenwich and Hudson Falls were called. The mill was a brick structure 400 by 100 feet in size.

The Malone Paper Company has just completed a new steel bridge over the Salmon river to care for the railroad spur which runs to its mill. The bridge is 100 feet long and cost $16,000. A new bridge was made necessary to bear the heavier locomotives being used.

Jeremiah T. Carey, former president of the International Brotherhood of Paper Makers, has filed a notice of appeal from the decision of Justice E. N. Smith. The action was brought nearly a year ago by Mr. Carey to restrain the brotherhood from ousting him as president and declaring H. H. Parker of Richmond, Va., president. Mr. Carey alleged that several hundred votes which should have been accredited to him in the election of officers were thrown out. Justice Smith rendered a decision holding that there was no conspiracy and that Mr. Parker had been legally elected, and it is from this decision that an appeal is taken.

A decision of interest to paper manufacturers and power users in Northern New York has just been handed down by the public service commission in the case of the Niagara, Lockport and Ontario Power Company. The commission held that the water rights of R. W. Horton and others on the Salmon river in Oswego county were necessary for the development



Exhaust Fan
ECONOMY

Economy in exhaust fans is not measured entirely by a saving that may be made in first cost.

Over a long period in operation the savings that are effected in power costs will save the amount of the investment several times over.

And then — the continuous, dependable operation that is in-built in every Bayley Exhaust Fan must be considered as economy, for it insures against interrupted operation and suspended processes.

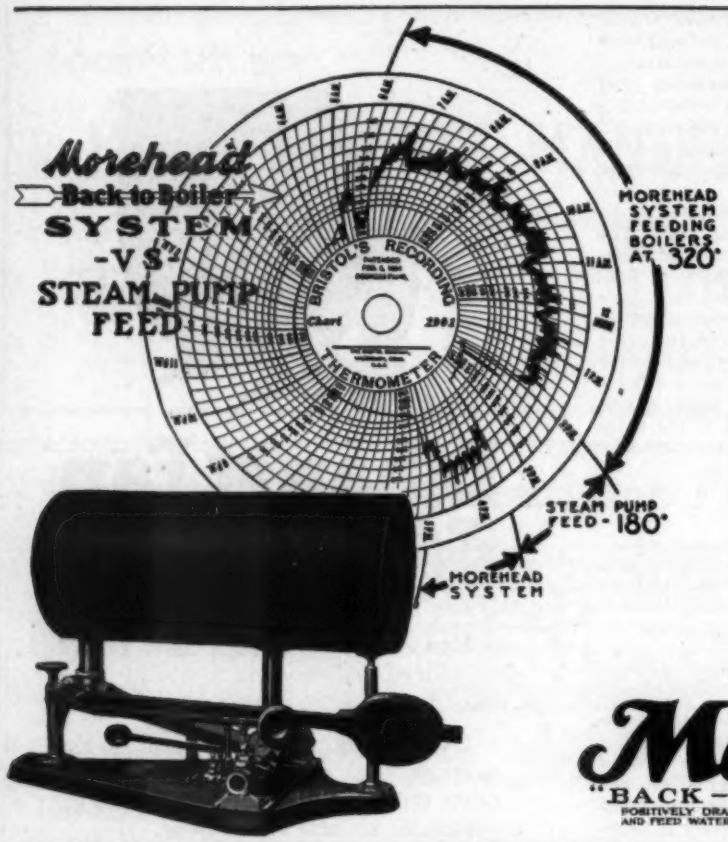
For removing dust from rag room, material from chippers, barkers and grinders, Bayley Exhaust Fans will exactly fit every need.

They are sturdily constructed throughout. The blast wheel is of particularly strong design and will easily withstand the shock of oversize material and large chunks of wood.

Investigate Bayley construction before you purchase exhaust equipment.

Bayley

MANUFACTURING CO.
748 Greenbush Street
MILWAUKEE, U. S. A.



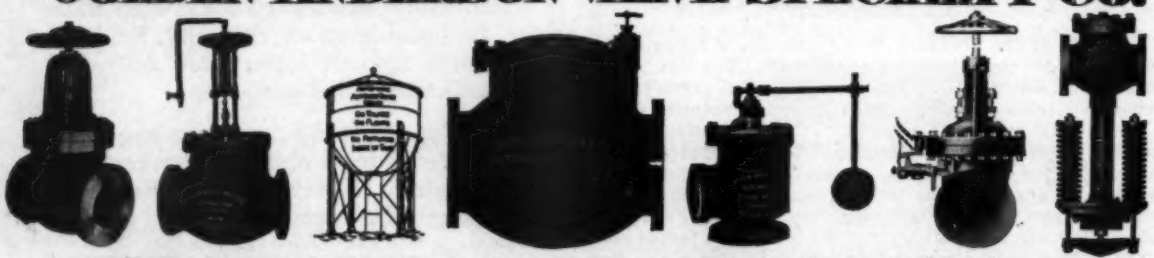
Time after time the Morehead Back-to-Boiler System has demonstrated its superiority for boiler feeding purposes.

Write us for Details

Morehead Manufacturing Co.
Dept. O, Grand River at Warren
Detroit, Mich.

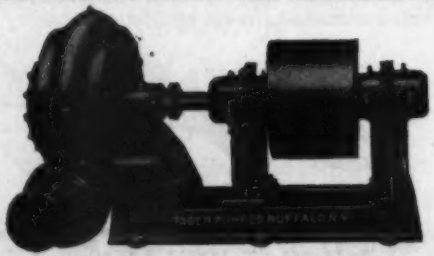
Morehead
"BACK-TO-BOILER-SYSTEM"
POSITIVELY DRAINS ALL TYPES OF STEAM APPARATUS. DELIVERS CONDENSATION AND FEED WATER TO BOILERS UNDER ALL CONDITIONS AT MAXIMUM TEMPERATURE

GOLDEN-ANDERSON VALVE SPECIALTY CO.



AUTOMATIC CUSHIONED STEAM AND WATER-SERVICE VALVES.
"We Challenge to Test for Merits Any Automatic Steam or Water-Service Valves in the World"
1240 FULTON BUILDING. PITTSBURGH, PA.

Another Massive TABER CENTRIFUGAL PUMP



TABER PUMP CO. Buffalo, N. Y.
"Pump Specialists"
Builders of Centrifugal and Rotary Pumps

PUMPS
INDUSTRIAL—AGRICULTURAL—MUNICIPAL—RESIDENTIAL
A Type for Every Service
THE GOULDS MANUFACTURING COMPANY
SENECA FALLS, N. Y.
GOULDS

of the water power site of the Niagara, Lockport and Ontario company. Under the Miller water power act of 1921, a company holding a majority of the power on any river, can exercise the right of eminent domain against the minority holders. The Horton interests hold that the water power act is unconstitutional and say that the case will be carried to the Supreme Court of the United States for a final decision. The Niagara Company owns 28 feet of head on the river and the Horton interests own 22 feet.

Paper mill owners along the Racquette river, which includes the Hanna group of the Carlisle interests, are interested in the water storage program which will be put forth by the Republican legislature which took office today. Two years ago application was made for the creation of the Racquette river regulating board, and the plan had been pending until last September when it was quietly dropped. It was felt that with the Republicans in control it would be easier to put through the regulating district with more ease than under a Democratic administration.

A great amount of paper has been shipped over the Champlain division of the New York state barge canal system. The last trip before navigation closed carried 3,000 tons of paper. The barges pass down from Canada to Lake Champlain, and thence by canal to the Hudson river and to New York. The water transportation is available during a large portion of the year and gives the advantage of low freight rates.

Paper made by Knowlton Brothers Company of Watertown has found its way into the radio. Radio sets manufactured by a western concern use the Watertown made paper in the manufacture of certain parts of the loud speaker. The discovery was made by local radio fans who discovered the trade mark of the Watertown company on the paper used.

Charles A. Wilson of Glen Park, for 30 years master mechanic of the International Paper Company, was seriously injured a few days ago while superintending the moving of some of the machinery at a Brownville paper mill. The machinery fell on him and he suffered a severe fracture of the left hip.

The St. Regis Paper Company has closed a contract with the New York Telephone Company to supply it with paper for telephone directories for 1925. It requires the furnishing of from 23,000 to 24,000 tons. The paper will be manufactured at the Deferiet mill and slight changes will be necessary.

John D. Haskell and Mortimer H. Rust, both of Fulton, have made application for patents on a new siphon cylinder washer for use in the beaters in paper mills. The device will be placed on the market by the Dilts Machine company of Fulton.

Foreign Correspondence

British Wall Paper Trade Maintained

The ordinary general meeting of the shareholders of the Wall Paper Manufacturers, Ltd., was held recently at the Holborn Restaurant, London, Mr. Edgar Smith, chairman, presiding. The Wall Paper Manufacturers, Ltd., is a company representative of the leading manufacturers of wall paper in this country, and, in view of this, some of the statements of the chairman make interesting reading. Among other things, Mr. Edgar Smith mentioned:

"Now that we have completed our twenty-fifth year as a limited company, it is not unpleasant to look back upon a quarter of a century of effort and achievement and of service to the public. The trade as a whole has been stabilized. Our workpeople are more regularly employed and receive better wages. Above all, the public gets good value for their money. We are always trying to improve our designs and colorings, also the quality of our materials and goods so as to offer that combination of quality in materials, excellence in design, and reasonableness in price which make our wallpapers su-

EVEREDY SINGLE DRUM 500 LB. HOIST

$225.00

Weight 215 lbs.

Its Metal Fingers Think

COMBINED with Everedy's brute power is intelligence. A bottom as well as a top limit stop, *adjustable to any point,* prevents overrunning of load in either direction. These metal fingers that think, protect load and hoist when workmen forget.

Its few moving parts are easily accessible. Accessibility—this one feature has sold hundreds of Everedys in competition with practically every other hoist.

Low head room. Load carried at all times plumb with center of suspension. Roller bearing equipment throughout, "Alemite" lubrication.

For sound value, this Everedy Single Drum Portable Electric Hoist stands in a class of its own. No hoist of like quality has ever been offered at such a low price. READING CHAIN & BLOCK CORP., READING, PA., Manufacturers of *Everedy Portable Electric Hoists, Reading Multiple Gear Chain Block, and Reading Traveling Cranes.*

Write for free literature

Everedy

ELECTRIC HOIST »» *Multiplies Man Power*

FOR SALE: Two Spangenburg Rotary Paper Screens with counter and pulleys. Used only few weeks. Plates .036 cut. Complete in every detail and good as new. Price $1,500 each f. o. b. Bastrop, which is half price. Bastrop Pulp & Paper Co., Bastrop, La.

FOR SALE

Mitchell Jackets A. P. Quality

6 Jackets 179" face for 22" diameter Roll
7 Jackets 130" face for 19½" diameter Roll
8 Jackets 112" face for 19½" diameter Roll
5 Jackets 194" face for 17½" diameter Roll

The Mead Pulp and Paper Company, Chillicothe, Ohio

PRESSURE PIPE THAT NEVER BURSTS
Built in sizes 1 inch to 48 inches

WYCKOFF WOOD PIPE

The Paper Industry is successfully using thousands of feet of this Pipe and they find it to be the best conveyance for Paper Stock and Acids that can be obtained.

Write today for catalog and prices

A. WYCKOFF & SON COMPANY

1855 Elmira, N. Y., U. S. A. 1924

34 years' experience in designing, selling and manufacturing pulp mill machinery. Have several patented improvements on Pulp Grinders, Chippers, also "Union" Wet Machine. Connected with Union Iron Works, Inc., Bangor, Maine, for past ten years. Will be open for engagement after January 1, 1925, as the above company will devote entire time to the manufacture of snowplows.

Address, H. E. Tidmarsh, Bangor, Maine, P. O. Box No. 53.

WANTED

Superintendent for our box board mill. Vacancy caused by death. Permanent employment for right man in city of fifteen thousand. Excellent schools and state university located in city. Applicant must have had experience in manufacture of test container liners. Write stating age, education, experience, list of employers and references, also stating size of family and salary expected. If your record will not bear investigation, do not apply.

LAWRENCE PAPER MFG. CO.,
Lawrence, Kansas.

Paper Machinery For Sale

One Pusey & Jones Fourdrinier Part takes wire 126" x 60' equipped with New Century shake Millspauch suction couch roll and Connersville vacuum pump.

Moore & White four drum winders.

Two 72" nine roll Holyoke super calenders.

Four 66" nine roll Holyoke super calenders.

One 48" nine roll Holyoke super calenders.

Four 60" Hamblet sheet cutters with Moore & White layboys.

Two Jones beaters 66 x 57.

Complete Marshall Drive for Paper Machine —Pusey & Jones self-contained type with friction clutch, cone pulley and Mortise gear.

***By* FRANK H. DAVIS CO.**

175 Richdale Ave. Cambridge, Mass.

Paper and Pulp Mill

WATERTUBE BOILERS

2—205 H. P. 180 lb. Heine A. S. M. E.
2—290 H. P. 200 lb. B&W A. S. M. E.
4—295 H. P. 160 lb. B&W A. S. M. E.
2—400 H. P. 180 lb. B&W A. S. M. E.
10—500 H. P. 160 lb. Parker A. S. M. E.
4—500 H. P. 200 lb. Heine A. S. M. E.
4—600 H. P. 175 lb. B&W A. S. M. E.

GENERATORS

1—200 K.V.A. Westinghouse, 3-60-480 Volts. Connected to a straight line automatic engine.

1—200 K.W. Crocker Wheeler, 3-60-220/440 Volts. Connected to a Compound Tandem Engine.

1—500 K.W. Westinghouse, 2-60-220 Volts. Connected to a Parsons Turbine.

1—500 K.W. Western Electric, 3-60-440 Volts. Connected to a Four Valve Corliss Engine.

Locomotive Cranes—Industrial Railway Equipment, Etc.

F. WILLIAM STOCKER

726-732 Jefferson Street, HOBOKEN, N. J.

preme. We know no similar trade where a comparison in quality and price today with those of pre-war days is so satisfactory.

"The year under review, like the preceding year, has been one in which we have experienced keen competition in prices, both from English and foreign sources, but owing to the efficiency of our organization, we have been able fully to maintain our trade. This competition has been even more intense in the overseas Dominions, and yet in those markets our trade has very considerably increased. In all our mills, the machinery has been kept up-to-date by renewals and repairs, and, as I foretold you a year ago, there has been a considerable amount of capital expenditure in further improving the company's factory and plants. . . .

"Our cordial relations with labor have been maintained. You will remember that five years ago, the Wall Paper Makers' Industrial Council was formed. It has done useful work, and has pursued a steady course of reconciling differences; also it has brought about a better comprehension of the difficulties which beset the employer and the employed. . . . .

"It was very gratifying to everyone employed in our industry when his Royal Highness the Duke of York, as president of the Industrial Welfare Society, paid a visit to our factory at Chiswick last March. He showed a real interest in the many departments of skilled work, especially in the one where hand-printed papers were being made. His Royal Highness actually printed part of a wallpaper which was then being made for Windsor Castle."

Paper Mills in Tasmania

Yet another country will soon be entering the world market as a producer of paper. The Manchester Guardian Commercial states:

"In the annual report of the Tasmanian Hydro-Electric Department it is stated that there are prospects of a large factory for the manufacture of wood pulp and paper being established on the northwest coast. The industry will probably involve a capital expenditure of approximately £3,000,000. At first about 4,000 electrical H. P. would be required, and present indications are that a further 1,000 H. P. would be utilized within a year or two."

The British Industries Fair for 1925 will be held from February 17th to 25th at the White City, London, and at Castle Bromwich Aerodrome, Birmingham.

Paper Facts in Advertising

Following my remarks last month on the introduction of paper facts and statistics into the advertising of "London's Underground" group of companies, it is very interesting to observe that another British company—the British Insulated and Helsby Cables Limited—realizing the important part which paper plays in the production of their cables, have thought it worth while to make paper a special feature in a three-inch double-column advertisement in the current issue of the Manchester Guardian Commercial.

The advertisement is headed "Paper" and in the top left-hand corner is an illustration of rolls of paper.

The text of the advertisement reads as follows:

"The manufacture of electric cables with paper insulation was introduced for the first time in this country by the B. I. some thirty odd years ago, and the present day Prescot paper-insulated Cable is the outcome of many years' development in paper insulation. The paper used in Prescot Cables is chosen primarily for its insulating properties and strength, and arrives at the factory in the form of large rolls, which are cut and rewound in special machines, and then lapped to the cables in varying thicknesses, depending on the pressure to be withstood. It might be mentioned that the first 100,000 volt D. C. cable to be manufactured in Great Britain was a Prescot Cable, which is still giving excellent service. Paper insulation insures a state of chemical inertia in the cables which goes far to increase its life. Constant laboratory research into the different papers on the market and repeated examination and test of all paper used on Prescot Cables insures to the customer an output of the best—B. I. quality."

Educational advertising is being used more and more in England as a means of "driving home" to business men facts in connection with matter in which they are interested. There are doubtless a large number of people who are under the impression that the uses of paper finish with printing and wrapping, and this sort of publicity is doing useful work in explaining to the British public and to business men the important part that paper plays in commerce.

Paper Trade Window Displays

At the office in London of the Agent-General of the Province of Quebec, Canada, which is situated in Kingsway, one of the most prominent and modern thoroughfares in London, a number of paper manufacturers of Canada have combined to further the interests of the Canadian paper trade by bringing it to the notice of the many thousands of business men which pass up and down Kingsway daily.

In one of the large windows on the left-hand side of the entrance to Quebec House has been arranged a display, featuring the many uses to which paper can be put. A wax figure of a girl stenographer sitting at her typewriter is surrounded with a multiplicity of the varying types of paper for business use.

Robins Conveying Systems
FOR HANDLING BULK MATERIALS
Write for Handbook of Conveyor Practice
ROBINS CONVEYING BELT COMPANY
New York Chicago Pittsburgh Boston

PAPER AND PULP KNIFE GRINDERS
using
Sectional Wheel, Cup Wheel or Straight Wheel
Catalog on Request
BRIDGEPORT SAFETY EMERY WHEEL CO.
102 Knowlton Street, Bridgeport, Conn.

Western Paper Makers Chemical Company
Paper Makers Chemical Company
Kalamazoo, Mich. Holyoke, Mass. Easton, Pa.
Jacksonville, Fla. Pensacola, Fla. St. Austell, England
Rosin Size, Satin White, Clays, Fillers
Foam Killer, Felt Soap and Other Specialties

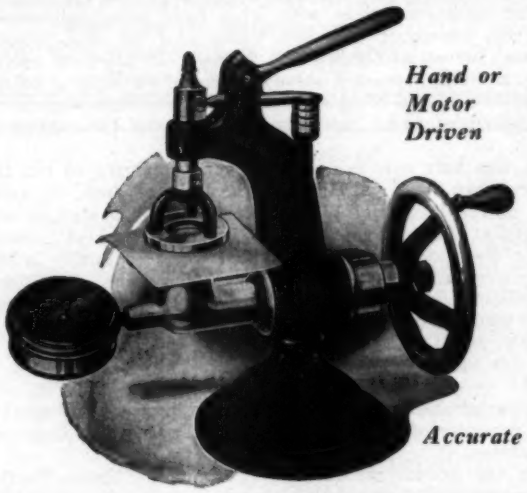
PERKINS HOLYOKE

Keep Your Product Up to Your Standard

with the MULLEN PAPER TESTER, the world-standard for measuring the exact bursting strength of paper

PRACTICAL

because of the direct relation of the Mullen Test to *actual working* conditions. The fibers burst at the weakest spot of the paper, exactly as would be the case with a sufficient strain on paper in *actual use*.



Hand or Motor Driven

Accurate

For full particulars write

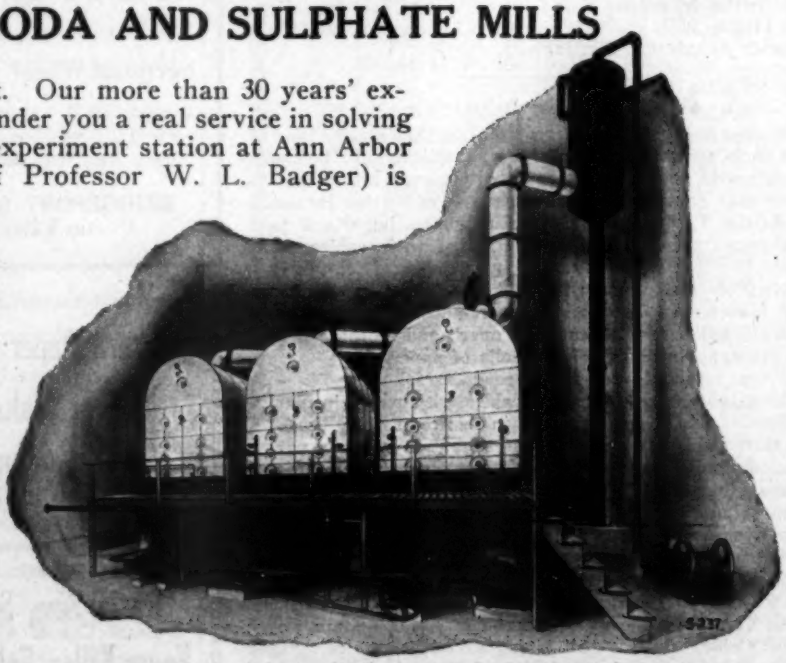
B. F. PERKINS & SON, Inc.
SOLE MANUFACTURERS
Holyoke, Mass., U. S. A.

Swenson Reclaiming Machinery

FOR SODA AND SULPHATE MILLS

Meets every requirement. Our more than 30 years' experience enables us to render you a real service in solving special problems. Our experiment station at Ann Arbor (under the direction of Professor W. L. Badger) is equipped to make tests on a commercial scale. Whiting Corporation's complete manufacturing facilities are back of Swenson products.

Submit your evaporator problems to Swenson. Bulletin P-123 on request.



Standard Swenson Horizontal Tube, Triple Effect

SWENSON Evaporator Co.
(Subsidiary of Whiting Corporation)
Main Office and Works, Harvey, Ill.
(Chicago Suburb)

Sales Offices in New York, Chicago, Pittsburgh, Buffalo, Cleveland, Detroit, Birmingham and San Francisco.

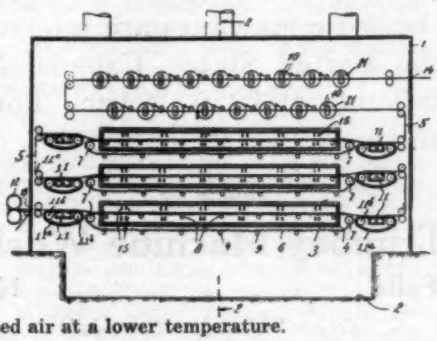
Technical Developments in the Paper Industry

Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Drying Paper

THE illustration shows a machine for the drying of paper which has been patented in United States Patent No. 1,515,614. The principle on which the drying of the paper is carried out is simply to heat the paper to a high temperature in a saturated atmosphere so as to prevent surface drying and then to remove the moisture from the paper by current of dry heated air at a lower temperature.

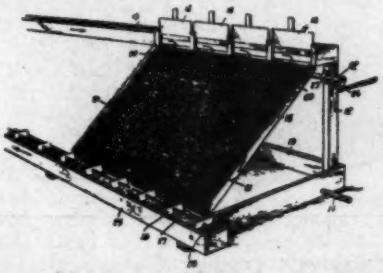


Improved Save-All

THE improved save-all, which is shown in the accompanying illustration, is designed for the purpose of separating the pulp fibers from the waste discharged from apparatus which handles raw stock, or from the white water coming from the papermaking machine. A particular feature of this device is that no power is required for its operation.

The device consists of an inclined screen, the lower edge of which is so supported that the angle of the screen can be adjusted according to the nature of the particular pulp that is being treated. The upper part of the screen is made from 100-mesh wire, while the remainder is made from 60- to 70-mesh wire. In order to keep the fine wire open a shower pipe is placed at the back of the apparatus. White water flows on to the screen through discharge pipes in the upper flume.

The base of the separating machine is made in the form of a basin (10) for receiving the water after it is separated from the stock, and this basin (10) is provided witn an outlet pipe (11) for carrying off the water. At the rear of the basin (10) there are erected posts (12), which support a trough or flume (13) closed at one end and connected at its other end with the apparatus handling the raw stock, or with the papermaking machine to allow the waste water containing the pulp fibers to flow through the trough or flume (13) to the discharge end. The front of the trough or flume (13) is provided with a number of gates (14) for discharging the waste water on to the upper end of a screen (15), which is inclined downward and forward. The upper end of the screen (15) is hinged or pivoted at (16) to the bottom of the trough (13) at the front edge of the same, and the lower end of the said screen (15) is provided wih adjusting means (17), such as a turnbuckle, connecting the screen with the basin (10) to allow variation of the incline or angle of the screen (15), according to the nature of the pulp under treatment at the time.



Horn Paper

ACCORDING to the World's Paper Trade Review, paper is treated with various impregnating agents to obtain a product with decided horn-like properties. This substance is then employed in the manufacture of boxes. A rather soft cardboard is employed as the starting material and is then coated with a casein solution which is not too consistent, and the sheets are then run between revolving steel cylinders which are heated to a temperature of 80 to 100 degrees C. This coating and rolling operation is repeated several times until the board attains the stiffness and strength of horn. The sheets are then washed over with a phenol resin solution, which saturates them. When dry the material can be cut and made into combs and buttons, dyed and polished.

Building Blocks from Paper

A PATENT was recently issued to a French concern for the manufacture of building blocks from paper.

These strong light panels and blocks suitable for building purposes are made in the following manner: A wire mold of suitable size and shape is immersed in a vessel of water and the stock is poured into the mold, the consistency of the former being about that generally used in the beater. The water is allowed to flow out of the vessel, and the wet block and panel are dried in the usual manner. Hence drying may be accomplished by the application of suction, slight pressure or heat, or a combination of these. It is important to avoid heavy pressure, as this would make the fibers more compact and increase the density of the finished product.

The strength and the density of the article will, of course, depend on the nature of the pulp, the treatment to which it is subjected, the length of the fibers, and also the rate at which the water is allowed to flow out of the vessel. The mass that is obtained in this manner is not homogenous throughout, the surface layer being somewhat denser and stronger than the inner portion. It is, of course, possible to obtain products of varying properties, color, etc., by the preliminary incorporation with the pulp of various sizing, filling, pigmenting, waterproofing or fireproofing materials. The surface of the product may also be finished in any suitable manner.

Extraction of Liquors from Paper Pulp

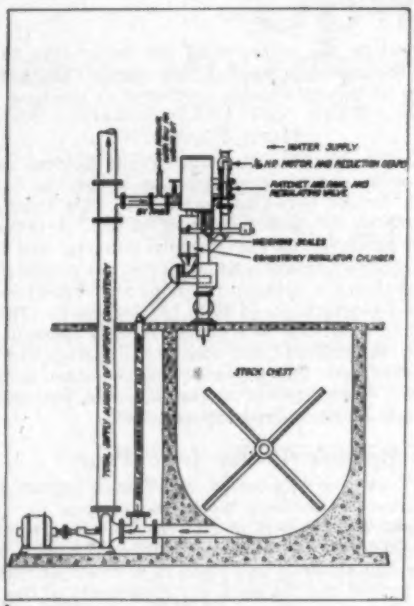
IN THE removal of liquors from paper pulp, sewage sludge, and the like, considerable power is consumed in the continuous process of extraction when suction is applied below the wire on which the pulp is spread and in which process suction boxes are used. This large consumption of power is due in the first place to the leakage of air through the wire into the suction box or near the edges of the layer of material under treatment. Furthermore, the material itself, after a certain amount of the water content has been removed, becomes more or less pervious to air with the result that there is an additional leakage of air through the material itself.

Largely for the reasons indicated, the amount of water which can be conveniently and economically removed from paper pulp, sludge and like materials by the means referred to above are necessarily limited. It has been found that the difficulties which have been indicated above can be largely overcome, that a considerable saving in power can be effected, and that a larger portion of the liquid present in the material can be removed by the application of the invention, which is patented in British Patent No. 221,311.

This consists in arranging, in conjunction with a suction box, suction drum or the like, an endless traveling band or

The Trimbey Automatic Consistency Regulator

(Patented)



Not only the FIRST but the ONLY device on the market which will control the Consistency of Paper Stock as it is being pumped.

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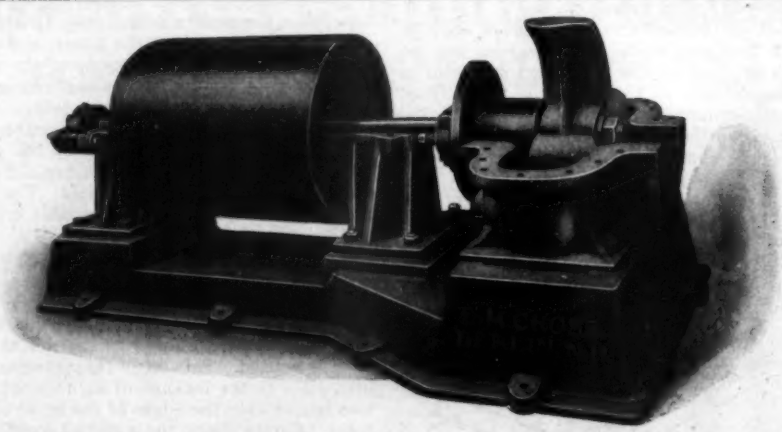

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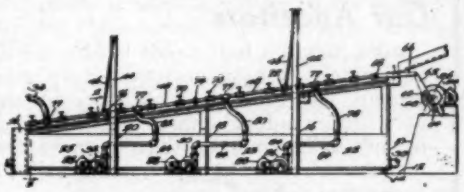
apron of impervious material such as, for example, waterproofed fabric, in such manner that it forms, generally speaking, an airtight cover to the material as same passes or travels over the suction box. In other words, this belt will prevent air from passing into the box either at the edges of the material or through the latter itself.

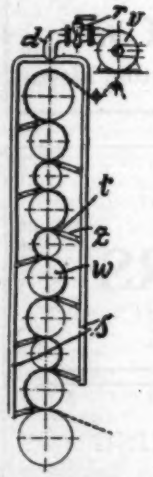
Washing Pulp

THE apparatus which is shown in the accompanying illustration is used in the washing of pulp. A screen is provided over which material to be washed passes, and a spray device delivers water at points spaced at certain distances over the surface of the screen. Means are also at hand for reciprocating the spray device along the screen at a slow pace in the direction of the travel of the material that is being washed. The reciprocating motion is also rapid in the opposite direction to the flow of the stock. This apparatus is patented in United States Patent No. 1,516,593.



Calendering Paper

THE calendering process can be applied only to such papers that have been sufficiently saturated with air and are not charged with electricity in their passage through the paper-making machine. Hence, the general practice has been to allow the paper to remain piled up for a certain length of time so that it attains the proper condition for calendering.



According to the invention, which is patented in German Patent No. 403,823, the paper, just as it comes from the paper-making machine, is allowed to enter the calender rolls, and while this is in progress the paper is made to come in contact with a current of air which has either been cooled or made moist and which may also contain coloring matters and other additional materials.

The arrangement for accomplishing this action is shown in the accompanying illustration. Alongside the roll (w) there are located two tubes, both of which are connected to the pressure pipe (d). The latter pipe is connected with the fan (v) through a regulating valve (r). Nozzle tubes (t) are located between the angles made by the rolls, and these nozzle tubes are connected by pipes (z) to the tubes (s).

In most cases the calender rolls need not be heated, as the air saturation treatment makes the paper web so pliable that it is just right to be ironed out between the calender rolls. The blast of air that is directed against the paper web may be cooled or it may be saturated more or less with moisture, to which there may be added chemicals, polishing materials or coloring matters.

Decomposition of Spruce Wood with Alkali

AN INTERESTING study is published in the German paper Cellulosechemie, 1924, pages 81 to 87, on the decomposition of spruce wood with alkali and the treatment of the various products formed by heating under pressure at a high temperature.

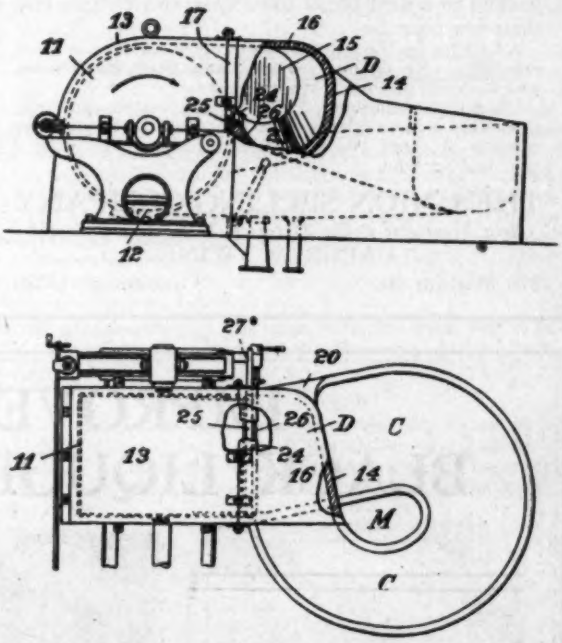
In accordance with the usual methods that are employed in the manufacture of soda cellulose from wood, the spruce wood is decomposed with caustic soda and yields 42.8 per cent of cellulose and a residual lye ("black lye"), which contains 21.6 per cent of lignin, 18.2 per cent of lactones and hydroxy acids, 3.2 per cent of acetic acid, 1.7 per cent of formic acid and 1.7 per cent of methyl alcohol. When the lignin is heated with an additional amount of caustic soda at a temperature of 360 degrees C. under 150 atmospheres pressure for one hour, there is obtained a further quantity of methyl alcohol and acetic and formic acids. The lactones and the hydroxy acids are also converted into acetic and formic acid by further treatment with caustic soda. Similarly the black lye may be treated in the same manner and will give the same products.

Beater with Spiral Trough

GERMAN Patent No. 398,563 is concerned with a beater in which the trough is made in the form of a spiral, as may be seen from the accompanying illustration. In this beater the stock, after passing between the beater roll and the bedplate, is lifted over the crown of the beater roll and then allowed to flow back into the trough through a truncated cone-shaped portion and then is beaten again between the beater roll and the bedplate. In this way it is possible to attain a very great speed of travel of the stock in the trough.

The beater trough is seen at (c), the ordinary beater roll at (11), the bedplate at (12). The beater roll is provided with a casing (13), which prevents the stock from being thrown out of the beater and at the same time protects the same.

The trough (C) has the usual U cross-section and ends in its upper part in a tubular part, which has the form of a hollow truncated cone, whose upper end is closed and whose lower end is open. The cone section is also open on one side. This part



of the apparatus is seen at (D). The open end of the truncated cone tube comes up directly against the beater roll. The part (D) possesses a later inlet (17) through which the stock from the beater roll enters and flows through into the trough (C) through the wide open end of the device.

Fastened to the bottom (23) there is a doctor (24), which removes the stock that remains on the beater roll (11) when it passes this point. At the same time this doctor prevents the stock, which has been removed into the part (D) of the machine from entering between the spaces between the bars on the beater roll. Under the doctor (24) there is placed a tube for leading water into the apparatus. This is seen at (25). It consists of a perforated tube, the perforations in which are arranged at such a distance from one another that water is conducted to the bottom of the truncated cone shaped portion (D), which has the effect of improving the flow of stock through the apparatus. The doctor (24) and the water tube (25) are fastened to the piece (26). The water is led into the apparatus through the pipe (27).

De-Inking Printed Paper

PAPER pulp which is suitable for the manufacture of paper is prepared by agitating waste printed paper with an alkaline liquor which contains colloidal mineral detergents, such as

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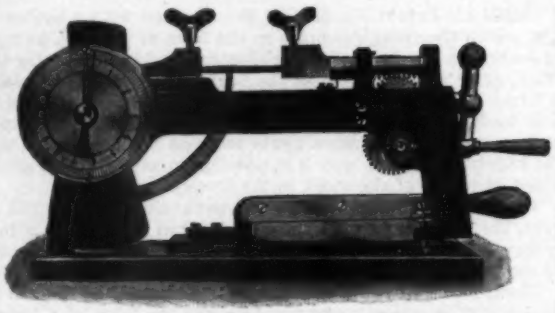

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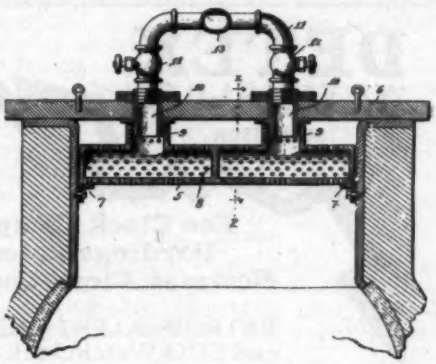
fuller's earth, kieselguhr, china clay, silica, asbestos and soapstone, together with a protective colloid such as glue, gum tragacanth, starch, albumen or casein, and afterwards removing these detergents from the purified pulp by washing.

For example, 450 grams of ground soapstone, 4,300 grams of water and nine grams of casein are added to 24 to 26 kilograms of printed paper which has been previously pulped with 475 to 480 kilograms of water, which contained 120 grams of sodium hydroxide. The mixture is then agitated for a period of twenty to thirty minutes, or until the ink is completely removed from the paper, and the product is then washed in drum washers and traces of alkali remaining in the purified pulp neutralized by the addition of an acid or acid salt. British Patent No. 222,160.

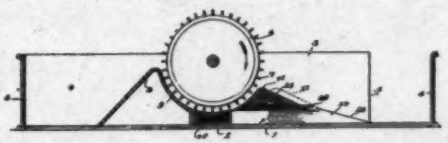
Paper Pulp Strainer

UNITED STATES Patent No. 1,517,839 is concerned with a strainer which is used in combination with a paper pulp digester. In the illustration the cover of the digester is seen at (6). Two pipes shown at (10) lead from this cover, each being provided with its own valve, seen at (12). The hollow perforated strainer is seen at (5). The strainer is divided into two parts and each strainer chamber is connected to one of the discharge pipes mentioned above.



Deflector Block for Beating Engines

IN THE illustration there will be seen the deflector block (11), which is patented in United States Patent No. 1,517,783, as an attachment to a beating engine. The deflector block is supported on the front side of the beater roll and co-operates with the same for regulating the feeding of the stock to the beater roll. This deflector block has a limited motion to and away from the peripheral wall of the beater roll.



Determining Mechanical Wood by Permanganate

THE percentage of mechanical wood pulp that is contained in newsprint is an important factor that must be determined regularly by those chemists who are engaged in this particular phase of the paper industry. Therefore, the method which is described in the German journal Zellstoff und Papier, 1924, pages 113 to 115, is of particular interest, as it renders possible this determination within a short time without impairing the accuracy of the results obtained.

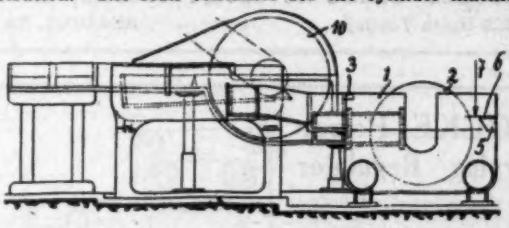
The amount of mechanical wood pulp that is contained in a newsprint may be determined in an empirical manner by recording observations of the reaction velocity at constant temperature in the decolorization of an acid solution of potassium permanganate. In making this test the sample of paper is finely rasped and a one-gram portion is placed in a conical flask, which has a capacity of three hundred cubic centimeters. To this there is then added a mixture of ten cubic centimeters of strong hydrochloric acid and ninety cubic centimeters of water. After the paper has been made into a uniform paste with this solution by constant shaking for about two minutes, the temperature of the mass is adjusted so that it is exactly 20 degrees C., and fifteen cubic centimeters of a tenth normal solution of potassium permanganate are added all at one time.

The time that is required for the complete discharge of all the permanganate is noted in seconds. The percentage of mechanical wood pulp is then found from an empiricially determined graph, which takes the form of a straight line. For instance, 100 per cent mechanical wood decolorizes in sixty seconds, and 100 per cent of a medium hard sulphite pulp, which contains 2.4 per cent of lignin, requires 120 seconds. Sized papers should be prepared by previously washing with ether, and in case of loaded papers the weight of the sample should be correspondingly increased so as to give exactly one gram of fiber.

Cylinder Machine

IN GERMAN Patent No. 404,738 there is described an improved cylinder papermaking machine in which the main feature is the increase in the effective production of the apparatus.

The outline of the machine is seen in the accompanying illustration. The stuff container for the cylinder machine is

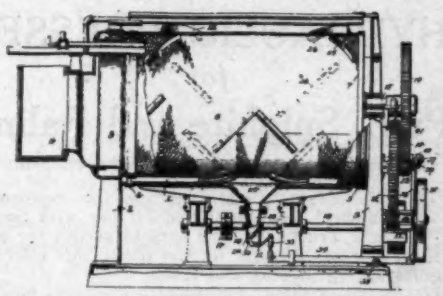


seen at (1) and the cylinder itself is noted at (2). Into this container (1) there is built a channel (5) at the side of the box opposite to the entrance point of the pulp-water mixture. The top edge of this channel (6) is somewhat lower than the level of the stuff mixture in the box. This level is indicated at (7). The water then flows through the channel (7) and is passed through suitable pipe connections to the scoop drum (10). The water which was mixed with the stuff is delivered from this drum to the regular knot catchers and then back again to the stuff container.

By the arrangement of this channel in the stuff box it is possible to produce a paper on this machine which is free from all imperfections.

Paper Pulp Screen

THE illustration shows a type of screen for paper pulp which is patented in United States Patent No. 1,518,507. This screen is provided with a regular vat into which the paper pulp is fed and which has a discharge opening in the lower portion for the coarse material and dirt. A cylindrical screen is mounted in this vat, and this screen is provided with means for rotating it. The screen is also made with a series of flights which are spaced at an angle to each other and to the axis of the screen, and these flights are secured to the outer face of the screen, as is seen at 27) in the figure. A valve is provided for controlling the discharge opening, and this valve is opened and shut in accordance with the rotation of the screen. The parts of the controlling mechanism are so arranged that the valve is opened when the pair of flights which are closest together come in juxtaposition with the discharge opening. Thus, the flights aid materially in discharging collected dirt and coarse material from the vat.



Durability of Latex Papers

FROM the very first time that it was announced that rubber latex had been used in the preparation of paper, which it was claimed possessed important advantages over the regular run of papers, considerable interest has been shown by paper men in this project. There have been, of course, a number of

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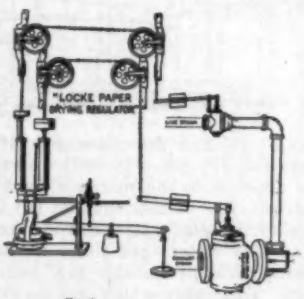

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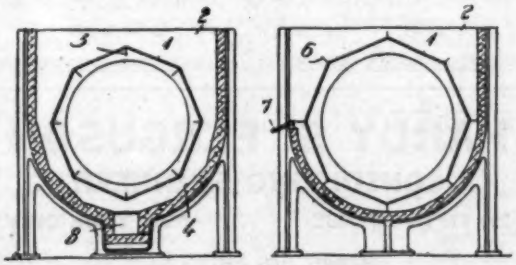
adverse reports on this matter and American paper mills are not, perhaps, as interested in this matter as they might have been had these reports not been unfavorable. However, interest still continues over on the other side, and every now and then the literature contains certain reports of investigations and experimental work performed on this subject.

The most recent report is by Kaye, who, as is known, was the first to make use of rubber latex in connection with paper pulp to produce a rubber paper. Kaye has something interesting to say about the durability of rubber latex paper in an article printed in the India Rubber Journal, 1924, pages 809 to 813.

According to this article, it has been found that rubber latex paper when stored underwent deterioration in certain cases, and in certain other cases its resistance to change in storage has been satisfactory. Certain samples, one or two years old, returned from Ceylon, were quite unchanged in general appearance and strength. Other samples which were made three years previously still maintained their advantage in bursting strength over similar paper prepared without latex. The greater resistance of the latex paper to oil is demonstrated by smearing a little olive oil or castor oil on a sample of each type of paper. The grease spot on the non-latex paper becomes uniform and clear in a much shorter time. The prolonged extraction of latex paper with acetone is likely to give a very misleading result, due to oxidation of the rubber during the experiment. Extraction for one hour is sufficient for the removal of rosin from paper.

Rotary Pulp Filters

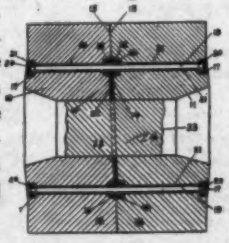
THE filter, that is patented in French Patent No. 557,250, consists of a vat and a filter drum which rotates in the vat. The peculiar part of the construction of the filter is that the vat and the drum are made so that the cross-sectional area of



the same is that of a polygon of several sides. The results that are obtained from this method of construction are that the pulp is subjected to alternate pressure and suction effects which facilitate the filtration. Longitudinal ribs are provided for on the sides of the drum and of the vat in which the drum turns. It is also possible and advantageous to provide the drum with paddles or blades, which are located along the sides of the rotating filter on its external face. These blades or paddles serve to remove the coarser masses and impurities that collect in the vat.

Wood Pulp Grinder

THE illustration shows a method for fastening the grinder stone to the axle. The stone is of natural origin and is made in a number of cylindrical sections. The faces of the several sections of the stone are parallel to one another and also slightly inclined from a plane which is perpendicular to the long axis of the axle. Means are provided for rigidly fastening the stones together at the inclined faces. United States Patent No. 1,518,422.

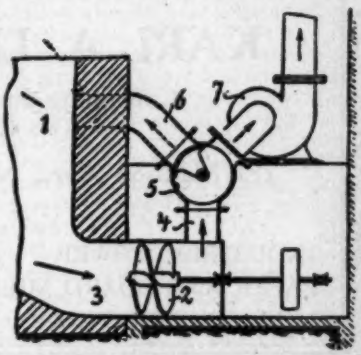


Highly Hydrated Cellulose

A PATENT has been issued to Dr. C. G. Schwalbe on an important improvement that he has made in the beating process. This consists in the manufacture of a highly hydrated cellulose material which acts as an accelerator when added to the beater. The very slow stuff that is made in this manner is prepared from flax and hemp chaff, which is first digested according to the customary sulphite process and is then beaten for a short time in the beater. By this treatment this material is quickly converted into a pulp made of extremely short fibers which are hydrated to an extraordinary degree. When the stock is first treated with a little acid, or when some acid is added during the course of the beating operation, the formation of hydrated, slimy stuff is considerably accelerated. It is possible to manufacture horny compositions of matter from this hydrated cellulose or else it may be used, as indicated above, to accelerate the beating of long fibered pulps. The process is patented in German Patent No. 401,421.

Stuff Box

AN IMPROVED stuff box is shown in the accompanying illustration. In the discharge passage (3) of the stuff box (1) a mixing device (2) is placed. This is made along the lines of a helical pump and serves to keep the stuff in the vat (1) in constant circulation. The pump (2) discharges into a pressure receptacle (4), which, through a three-way valve (5), is connected with a duct (6) that opens into the stuff box. With the three-way valve (5) another conveying or discharging device in the form of a helical pump (7) is connected.



The pumps (2) and (7) are so arranged in relation to one another that on the proper setting of the three-way valve, pump (2) can forward the stuff to pump (7) for the purpose of emptying the vat (1). The method of construction possesses the advantages that the pumps (2) and (7) are capable of arrangement so as to fulfill the purpose for which they are intended in the best possible manner—that is to say, the pump (2) can be so constructed that it will transmit the stuff conveyed to it, of which it pumps up in large quantities to a moderate height, whereas the pump (7) is so designed that it can elevate the stuff without regard to the difficulties to which helical pumps are subject, especially in raising the stuff. The apparatus is patented in England.

Sizing Paper

THE use of a mixture of magnesium sulphate and aluminum sulphate (papermakers' alum) for the sizing of paper is well known, but the use of magnesium sulphate alone does not give good results. Furthermore, there are certain disadvantages that are prevalent in the use of sulphates, as their tendency to generate acid plays havoc with apparatus in which they are employed. However, all these difficulties are removed when magnesium chloride is employed in the place of magnesium sulphate. In the first place, it is far easier to manufacture the chloride of magnesium than the sulphate, and, in the second place, the chloride does not attack the metal of the apparatus so energetically as the sulphate. Tests have also shown that chloride of magnesium may be used alone in the sizing process, but the sizing effect of this compound is, however, not high enough for certain grades of paper. On the other hand, a mixture of chloride of magnesium and papermakers' alum possessed the requisite degree of sizing ability, depending on the percentage of alum that is present in the mixture.

One composition which has been found to give good results contains one hundred parts of rosin and fifteen parts of calcined sodium carbonate, and the precipitating agent that is used in the process consists of three times the theoretical precipitating quantity of a mixture made from 130 kilograms of a thirty per cent solution of magnesium chloride. German Patent No. 399,138.

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Colloid Studies in Rosin Sizing
Concerning Lignin as It Occurs in the Wood
Contribution to the Knowledge of the Constitution of Spruce Wood Lignin
Southern Timber Resources in Relation to Paper Making

In paper, 228 pages

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Write to THE PAPER INDUSTRY, 356 Monadnock Bldg., Chicago, Ill.

New York, January 2, 1925.

NOT in a long time has a new year begun with prospects for good business in paper rosier than at present. There are numerous indications that 1925 is going to be a period of excellent activity for paper manufacturers and merchants. Of course, the market has slowed down to some extent in the last few days; this is a condition which invariably develops in the holiday and inventory season, but the very fact that buyers have been holding off while engaged in putting their affairs into shape for the year-end is a sign of healthiness.

General business in the United States has been good in the last couple of months. Eliminating the holiday period, it can be stated that generally more activity has been recorded in trade since election day than probably at any time in several years. Retail business was unusually gratifying in the pre-holiday season, and the movement of merchandise into actual consuming channels means that stocks of stores and wholesalers were considerably reduced, which in due time will be reflected by increased activity in manufacturing and in the wholesale divisions of business.

There are factors at present in view which seem to foreshadow splendid business in 1925. Prices of most commodities are better stabilized today than in years, and the consuming public has regained its confidence in the price level of the things it required. Consequently, buying is on the increase. Our export trade is steadily expanding. The European nations are coming into the American market and are purchasing large amounts of materials—manufactured and raw. Big loans are being floated by various countries in the United States and it stands to reason a good part of the money loaned by America will be spent right here in the United States by the borrowers, which should lead to a further increase in our export business.

Unemployment throughout the country is on a minimum scale; this means that the mass of workingmen are making money and therefore have money to spend. The securities market is booming, which is the best reflection possible of expectations of good business and brisk manufacturing activity. Furthermore, a vast majority of business men are talking prosperity, spreading propaganda that good business is to be enjoyed, and, after all, this is half the game, because with most people anticipating excellent business and making plans to get their share of the buying expected, business naturally goes forward and gains momentum.

Getting down to the specific case of the paper industry, there are many indications of a steady increase in consumption of paper of various kinds. Obviously, with most consuming industries on a livelier scale, they are in need of larger amounts of paper. Retailers are using more paper, publishers are consuming larger quantities, greater amounts of paper are needed for bundling and shipping merchandise, business concerns are using more stationery, converters are consuming increased amounts of paper, and, on nearly every hand, are definite signs of larger consumption of paper. Mills today are better fixed with orders on their books than in a long time, and the buying that has been done has not been of the fly-by-night variety, but based on the wants which consumers see directly ahead. In other words, there seems small likelihood of cancellations of orders, because buyers have not purchased in excess of their indicated requirements; if anything, most consumers have bought less paper than they will need, and probably will be obliged to augment their supplies by additional purchases in the near future.

The price situation in paper is firm. The tendency in most kinds of paper is upward decidedly, and this is a logical condition because few advances have been made in paper prices for some time past. Manufacturers have permitted raw materials to climb to a considerable extent without changing quotations on their product, presumably in fear of disturbing the equilibrium of their market. The result is that many lines of paper are being made and sold today at little or no profit to the producer. This cannot go on indefinitely; if raw materials hold up to prevailing cost levels there is no doubt advancement will be scored by prices of paper, necessarily so if manufacturers are to operate their plants at a profit. The probability of this should in itself bring buyers into the market to anticipate wants and to place orders accordingly.

Paper production in the United States increased 10 per cent in October over September, according to the monthly summary compiled and issued by the American Paper and Pulp Association in coöperation with affiliated organizations. Mills of the country produced a total of 477,585 net tons of paper of all kinds in October, compared with 434,000 tons in the preceding month, every grade of paper sharing in this increase. Despite this jump in output mill stocks of paper declined during October, showing that manufacturers shipped out all their current production and a part of their surplus holdings. Mill stocks at the end of October totaled 232,531 net tons, against 236,397 tons at the end of September, shipments for the month aggregating 480,702 tons, contrasted with 439,630 tons in September.

The monthly report on the boxboard industry compiled by the Department of Commerce placed the production of board of all kinds in the United States in October at 186,035 net tons, which was the largest month's output for 1924 with the single exception of August, when 186,340 tons were produced, and comparing with 179,982 tons in September. Board mills of the country operated a total of 8,039,913 inch hours in October, against 7,715,528 inch hours in September, and 8,156,758 in August. Orders received during October were for a total of 169,631 tons of board, contrasted with 158,671 tons in September, and 202,542 tons in August.

Newsprint continues to move to consuming centers in large tonnage. Of course, consumption has declined somewhat during the holiday season, but most publishers have welcomed the opportunity to build up their reserve stocks, which got down to a dangerously low level in the pre-holiday period. Little talk is heard in the trade concerning the likelihood of a further cut in print paper prices, as it is felt so long as mills keep as busy as they are now, manufacturers will not be disposed to reduce quotations.

Book paper is quotably steady except in rare instances where manufacturers grant slight concessions on tonnage orders. Demand is fair, yet a majority of mills catering to transient buyers are looking for business. Coarse papers enjoyed brisk activity prior to the close of the year, demand for kraft wrapping ruling quite active. Prices are firm at around 6 cents f. o. b. New York for No. 1 domestic kraft.

Fine papers are moving in a routine way and in comparatively good volume. Prices are firm and display a rising tendency, due in large part to the high level of rag costs. Building papers are unusually active for this time of the year, and most specialties are in good call.

Boxboards are steady in price but are seasonally quiet. Plain chip is quoted around $50 a ton f. o. b. New York, and filled news board at $52.50 New York.

The rate of duty on hand-made tissue paper was lowered in a ruling by the Custom Board at New York sustaining protests of the American Trading Company and the Japan Paper Company. On entry the paper in question was assessed six cents a pound and 15 per cent ad valorem under paragraph 1304, 1922 law. The claim of the importers for duty at three cents a pound and 15 per cent ad valorem under paragraph 1307 was granted in an opinion by Judge Fischer.

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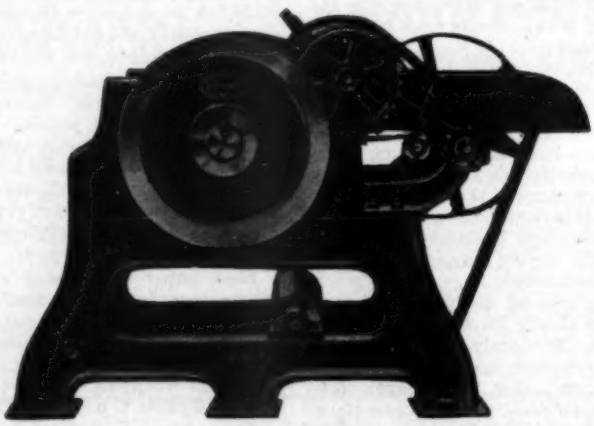

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Papermaking Rags

Ordinarily during the closing days of the year the market for papermaking rags slows down to a pronounced degree and prices record at least a little decline. The situation during the last couple of weeks has been no different in most respects from the similar period in former years—with one outstanding exception. Demand for the low grades of rags used chiefly by roofing paper mills has continued quite active. Despite the inventory season and despite the usual slackening of demand for various kinds of paper while consumers and jobbers were engaged in putting their affairs into shape for the year-end, activity in roofing rags has been decidedly brisk, and these rags not only have held very firm in price but in some instances have scored a further advance.

Obviously, with the lower class of papermaking rags in pointed demand and strong in value, prices of other grades have been more or less sustained. There has been but slight change in the medium and better qualities of rags. Some grades have eased off a trifle under the pressure of dealers endeavoring to effect sales to clear their stocks prior to the turn of the year, but, on the whole, prices are very well maintained. This, it might be said, has been due almost entirely to the firm price position of roofing rags and the supporting influence of same on the other descriptions of papermaking rags.

The supply condition in rags is not of the best—from the point of view of the paper manufacturer. Perhaps there is no serious shortage of any kind of rags, but the fact remains that a good many grades are in limited supply. Consumption of certain grades has been very heavy in recent months, and paper mills have bought in such a consistent manner that they have very well cleaned up accumulations not only in this country but in those parts of Europe where American paper manufacturers secure a large part of their rag supplies. Importers put much stress on the increasing difficulty encountered in locating normal amounts of most grades abroad. Moreover, European dealers, having made money in rags for some months past, and possessing small stocks, are extremely bullish in their price ideas and are demanding stiff prices when negotiating with buyers on this side of the Atlantic. It would seem from present indications that higher prices will be established for papermaking rags before the winter is over. When the spring arrives and with it larger supplies of rags, due to bigger collections at that time, it is probable prices will react downward, but in the meantime, if demand from consumers keeps up, only on a scale noted in recent months, there is every reason to believe the market will advance, because there is no denying the statistical position of rags is strong and available supplies are light.

Latest Department of Commerce statistics show that during the first ten months of 1924 the United States imported a total of 412,596,427 pounds of papermaking rags, against 327,054,429 pounds in the corresponding period of 1923. These figures tell the story of the sold-up position of European rag dealers, and explain why such high prices are quoted from abroad and why importers here are so cautious in booking additional orders from paper mills for many descriptions of rags. It is not going too far to say that the United States imported by far more rags last year than ever before, and imports in the closing months of 1924 were particularly heavy, which means that sellers abroad now have restricted amounts to offer and probably will be obliged to go slow in effecting sales until the spring collections commence to come in.

Roofing rags are bringing around 3.30 cents a pound f. o. b. dealers' shipping points for No. 1 stock, and from 3 cents upward per pound for No. 2 packing. Foreign dark colored cottons have sold at 3.15 cents and higher ex dock New York, and foreign linsey garments at 3.30 cents and up. Reports say that, in spite of fairly heavy purchases lately, roofing paper manufacturers continue to show much interest in rags and are absorbing practically all the supply offered them and meeting the prices quoted without seeming reluctance.

New cuttings have been comparatively quiet. Writing paper mills have let down in their buying while engaged in compiling inventories and making repairs to equipment, yet quoted prices are well maintained, dealers exerting little pressure on the market while holding less than normal amounts of most grades of cuttings in stock. Around 15.50 cents a pound at shipping points is asked for No. 1 white shirt cuttings, 10.50 cents for fancy shirt cuttings, 9.25 cents for washables, 14.25 cents for unbleached muslins, 11.50 cents for blue overall cuttings, and 11.25 cents for light silesias.

Old whites are quotably steady, but are seasonably quiet, and not much activity is observed in thirds and blues. Prices of these rags are upheld, however, largely on account of the relatively high level of roofing stock.

Average quotations f. o. b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	15.50-16.00
White shirt cuttings, No. 2	11.00-11.50
Fancy shirt cuttings	10.25-10.50
Washables, No. 1	9.25- 9.50
Unbleached muslins	14.25-14.75
White lawns	13.50-14.00
Overall cuttings, blue	11.50-11.75
Black silesias	6.25- 6.50
Light flannelettes	12.50-13.00
Canton flannels, bleached	13.50-13.75
Canton flannels, unbleached	12.25-12.50
Shoe cuttings, bleached	12.50-13.00
Shoe cuttings, unbleached	11.00-11.50
Light silesias	11.25-11.50
O. D. khaki cuttings	6.75- 7.00
Mixed khaki cuttings	6.00- 6.50
Corduroy cuttings	6.00- 6.25
Cottonade cuttings	5.25- 5.50
Linens, No. 1 white, foreign	17.00-18.00
Light prints, foreign	9.00- 9.50
Old stock—	
Whites, No. 1, repacked	7.25- 7.75
Whites, No. 2, repacked	5.00- 5.50
Whites, house soiled	4.00- 4.25
Whites, street soiled	3.75- 4.00
Lace curtains	5.50- 6.00
Thirds and blues, rough	3.25- 3.50
Thirds and blues, repacked	4.00- 4.50
Black stockings	4.50- 4.75
Cotton canvas, No. 1	5.75- 6.25
White cotton batting	4.75- 5.00
Roofing, No. 1	3.25- 3.40
Roofing, No. 2	3.00- 3.15
Dark colored cottons, foreign	3.10- 3.25
Blue linens, foreign	6.00- 6.50
Gray linens, foreign	6.50- 7.00
White linens, foreign	11.00-12.00
Light prints, extra, foreign	5.25- 5.50

Rope and Bagging

Both old rope and scrap bagging exhibit considerable price steadiness despite a slowing down of demand from consuming quarters. Dealers assert that old rope is scarce, and that normal supplies of old bagging are not to be had, and that even though buyers are not so ready to operate while engrossed with inventories and other matters apropos of the year-end, there is little change in price levels. Imports of old

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Consultation invited on new projects or where old installations should be rebuilt to reduce liquor losses, improve steam economy, or increase capacity.

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rope in the last several months have been comparatively large, which would indicate paper mills are moderately well supplied with this raw material at present. On the other hand, it is stated consumption of rope has been heavy and that the great bulk of supply received from abroad has moved almost directly into consumption, thus leaving the market in a firm statistical position. This appears borne out by the fact that consumers are meeting the prices asked for rope when interested in buying. Domestic old No. 1 manila rope is selling at around 6.75 cents a pound f. o. b. dealers' points, and in some cases above this figure, while foreign No. 1 rope is fetching 6.50 cents upward on the dock at New York. Strings are firm and in good demand, mixed strings bringing close to 2 cents a pound at shipping points.

Roofing is the most active grade in old bagging, and dealers and importers quote from 2 cents to $2 or $3 a ton higher for this stock f. o. b. shipping points or ex dock New York. No. 1 scrap bagging is selling at 2.65 to 2.75 cents a pound, while No. 1 gunny bagging is quoted at 3.25 to 3.50 cents at points of shipment.

F. o. b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	3.25-3.50
Gunny, No. 1 foreign	3.25-3.40
Scrap bagging, No. 1	2.60-2.75
Roofing bagging	2.00-2.15
Wool tares, heavy	2.75-3.00
Wool tares, light	2.65-2.85
Manila rope, No. 1 foreign	6.50-6.75
Manila rope, No. 1 domestic	6.75-7.00
Sisal strings	3.00-3.25
Mixed strings	1.85-2.00

Old Paper

The old paper market was a quiet affair during the closing days of the old year and not much improvement has been noted since the turn of the year except of a sentimental nature. The situation is quite nervous nevertheless, and it looks as though all that is needed to start prices on the rise is for consumers to increase their buying ever so little. Prices of most grades of paper waste, especially the low qualities, have worked down to levels where packers and dealers declare there is no profit in handling the commodity, and under such circumstances collections have been curtailed to a minimum. Consequently there is no large supply in the market and signs are that higher prices will have to be granted by buyers to induce dealers to broaden their collecting operations.

The market in the Middle West is relatively stronger than in the East; that is to say, western dealers have held out for better prices and have succeeded, in most cases, in obtaining higher figures for their product than have those in the New York district. Hard shavings of No. 1 quality are quoted between 3.60 and 3.80 cents a pound f.o.b. shipping points, and No. 1 soft white shavings at 3 to 3.25 cents. Old No. 1 heavy books are selling at 1.30 to 1.50 cents per pound, ledger stock at 1.60 to 1.75 cents, No. 1 manilas at 85 to 95 cents a hundred pounds, and old No. 1 kraft paper at 1.90 to 2 cents per pound. Folded news is quoted in New York at 70 cents a hundred pounds f.o.b. that city, and No. 1 mixed paper at 55 to 60 cents, whereas slightly higher prices prevail on these grades in the West.

Quotations f.o.b. shipping points are as follows:

	New York and Chicago
Hard white shavings, No. 1	3.60-3.80
Hard white shavings, No. 2	3.20-3.40
Soft white shavings	3.00-3.25
Colored shavings	1.50-1.75
Heavy book, No. 1	1.30-1.50
Crumpled book, No. 1	1.10-1.20
Ledger stock	1.60-1.75
Kraft, No. 1	1.90-2.00
Manilas, No. 1	.85- .95
White blank news	2.00-2.15
Over-issue news, No. 1	.80- .95
Folded news	.70- .85
Mill wrappings	.60- .65

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Common paper	.40- .50

Chemical Pulp

Quietness has obtained in the wood pulp market in the last several weeks. Consumers have been busy taking inventory and getting their affairs in order for the closing of the year, and have given but casual attention to the pulp market, confining their current buying to supplies immediately required. Moreover, most paper and board manufacturers now have considerable amounts of pulp coming in to their plants against back orders, which are keeping them supplied for a time, and, as is the usual thing at this season, have displayed little desire to augment their stocks.

The price tone in pulp is steady, however. Perhaps a firmer situation prevails than has been noted in quite a lengthy period. One reason, and probably the most important reason, is that producers are fairly well fixed with orders, reflecting the moderately heavy buying during the last several months. Of course, the bulk of recent buying has involved foreign pulps, but domestic producers have secured a substantial volume of business also and are better fixed with commitments today than in possibly a year or longer. Bleached sulphite is quoted firmly at 3.75 cents a pound upward at pulp mills for No. 1 bond quality, some quotations ranging up to 4.25 cents for special grades, while easy bleaching sulphite is quoted at 2.80 to 3 cents. News grade sulphite is selling at around 2.60 cents at producing plants, and No. 1 unbleached sulphite at 2.75 to 2.90 cents. Kraft pulp is firm on a price range of 2.75 to 3 cents a pound.

F.o.b. pulp mill quotations are as follows:

Bleached sulphite	3.75-4.25
Easy bleaching sulphite	2.80-3.00
Unbleached sulphite, No. 1	2.75-2.90
News grade sulphite	2.50-2.75
Soda pulp, bleached	3.50-3.75
Mitscherlich, unbleached	3.25-3.75
Kraft, No. 1	2.75-3.00
Screenings, refined	1.50-1.75

Mechanical Pulp

A distinctly firm undertone exists in mechanical pulp. Business in the commodity has slackened somewhat in the last several weeks, but this has been a seasonal condition and has caused no apprehension among manufacturers or dealers. As a matter of fact, nearly everyone on the selling side of the market is bullish in their ideas regarding the future of ground wood. Predictions are made that higher prices will be recorded before the winter is over, emphasis being put on the low level of stocks in grinders' hands and at consuming points, and on the severe weather in many grinding districts which is compelling manufacturers to reduce their output. Moreover, prices of mechanical pulp abroad are high; so high, in fact, that they are well above a parity with market levels here, and it is therefore held that little competition will be encountered from importers unless, of course, prices rise to meet the rates named from Scandinavian sources.

Domestic grinders are securing $30 and higher per ton f.o.b. pulp mills for prime spruce ground wood, most quotations being around $31 to $32, and ranging up to $35, depending on the air dry test and the freight to consuming centres. Canadian ground wood is quoted from $28 to $33 a ton at grinding mills, while imported ground wood is quoted at $36 to $39 a ton ex dock New York or other American Atlantic ports.

Chemicals

Few quotational changes in papermaking chemicals were observed with the turn of the year but such revisions as were announced were generally in an upward direction. The market as a rule is firm though present activity is largely confined to routine transactions and deliveries against contracts and back orders. Casein is quoted at 10 cents a pound or slightly higher, soda ash at 1.38 cents, caustic soda at 3.15 cents, and bleaching powder at 1.90 to 2 cents per pound.

Average quotations f.o.b. works are as follows:

Alum, lump ammonia	3.25- 3.50
Alum, lump starch	3.75- 4.00

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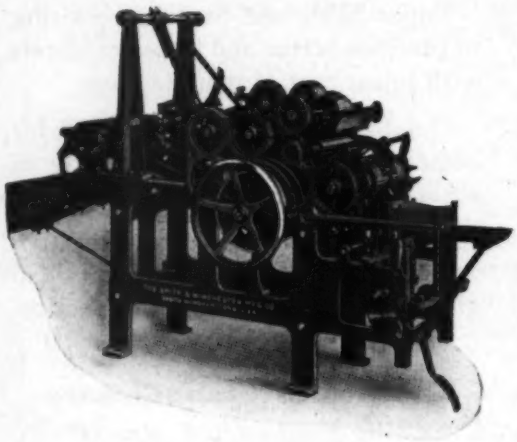

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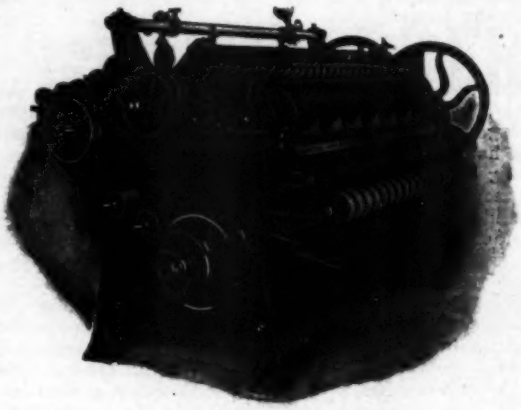

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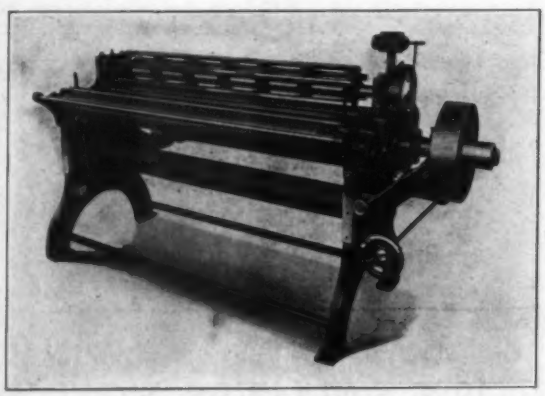
Hamblet Machine Co.
LAWRENCE, MASS.



Drum Winder Toilet Machine

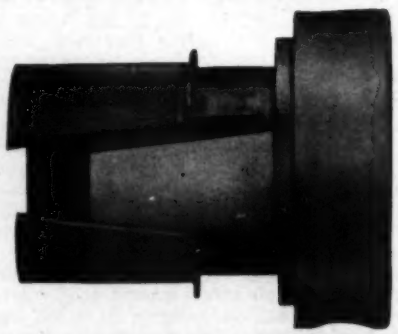
THIS machine winds a hard roll. The winding shaft rotates between two drums. The slitters are located in one drum. Various lengths of collars can be furnished for the slitter drum to accommodate different lengths of rolls desired.

Two core shafts are furnished with each machine, also two back stand shafts for Jumbo Rolls. The machine is ball bearing throughout, including the drive pulley.

Hudson-Sharp Machine Co.
Green Bay, Wis.

Selling Agents:
Gibbs-Brower Co., 261 Broadway, N. Y. C.;
100 Jackson Blvd., Chicago

THE ONEIDA CHUCK for use with Paper or Strawboard Cores



This chuck is so designed that it cannot split or damage the paper core on which the paper is wound and allows the roll to be run down to the last thickness of paper.

The conical or wedge-shaped chucks now commonly used with paper cores invariably split the paper cores so that from ½" to 1" of paper next to the core is damaged. The elimination of this waste will soon pay for the equipment on each machine.

Our Chuck allows the use of a cheap non-returnable paper core that once used can be thrown with the waste and sold.

Let us make up a trial set for you

ONEIDA CHUCK COMPANY
RHINELANDER, WISCONSIN
Eastern Agent, E. W. Myler, 386 Madison Ave., New York City
Telephone: Vanderbilt 6230

New Papers

Writing—	
White rag	20-45
White sulphite	11-30
Colored rag	16-40
Ledger—	
White rag	20-50
White sulphite	13-30
Colored sulphite	40-30
Colored rag	16-50
Bonds—	
White rag	19-45
White sulphite	10-30
Colored sulphite	10-30
Colored rag	16-50
Book—	
No. 1 S. & S. C.	6.75- 7.50
Machine finished	6.50- 7.25
English finished	6.75- 7.50
Coated and enameled	8.50-14.00
Lithographed, M. F.	9.00-15.00
Newsprint—	
Rolls, contract	3.50-....
Rolls, transient	3.65-....
Sheets	4.00- 4.25
Side runs	3.00- 3.25
Cover Stock—	
Coated, both sides	10.25
Coated, one side	10.15
Tissue—	
No. 1 white, 20x30	.75- .85
No. 2 white, 24x36	.70- .75
No. 1 manila, 24x36	.70- .75
Kraft	.90- 1.00
Wrapping—	
No. 1 Kraft	5.50- 6.25
No. 2 Kraft	5.00- 5.50
Boards—	New York and Chicago
Solid news	55.00-60.00
Straw	50.00-55.00
Plain chip	50.00-55.00
White coated chip	65.00-70.00
Manila coated chip	55.00-60.00
Binder's board	70.00-75.00

Chemicals

(Continued from page 1821)

Blanc fixe, powdered	3.75- 4.00
Bleaching powder	1.90- 2.00
Brimstone (long ton, at mine)	17.00-20.00
Casein (duty paid)	10.00-11.00
Caustic soda, spot delivery	3.15- 3.20
China clay, domestic washed	12.00-15.00
China clay, foreign	15.00-20.00
Rosin, grade E	6.00
Satin white	2.00- 2.25
Soda ash, 58 per cent light (bags)	1.38
Starch, papermakers', in bags	3.40- 3.70
Talc (ton)	16.00-17.00

Mr. B. H. Sherman, formerly with the Northern Paper Mills, Green Bay, Wis., is now associated with Charles W. Hills, of Chicago, and is no longer in a position to act as pulp testing chemist. His name has therefore been removed from the list of chemists approved by the Joint Committee.

Power Show Interests Paper Manufacturers

From the standpoint of the paper industry, the Third Annual Exposition of Power and Mechanical Engineering Equipment, held at the Grand Central Palace in New York City, was the most interesting of any held so far. More exhibits with greater diversity, made a most interesting show for the paper manufacturer, and for others less versed in the use of power and machinery, as the attendance was increased up till the show ended December 6th, when the total attendance showed a three-fold gain over the first show held December, 1922.

The paper manufacturers in attendance saw on display: power transmission machinery, power plant equipment, machine shop equipment, materials handling equipment, heating and ventilating devices, and other mechanical display. Many of the manufacturers and their products were well known to the paper industry. It would be impossible to review all of them as over 300 manufacturers were there with exhibits that covered 150,000 square feet of floor space. Some of the exhibits were spacious, with several men in attendance. Among these were:

General Electric Co., showing G. E. Turbines of units varying widely in power. Also on display were mechanically driven turbines with reduction gear, alternating current motors and G. E. electric steam generators. Visitors were shown by experienced engineers how it was possible to keep sufficient steam for night and holiday demands, without having to operate the main boiler plant.

Jenkins Bros., Ltd., had a most complete assortment of valves. With this display was a great variety of fittings of bronze, iron and rubber. The methods of manufacture and standardization were carefully explained.

Toledo Scale Co. showed scales for weighing, testing, computing and counting; scales designed for loads of 30 tons and others registering in terms of grains; scales for every conceivable use and every possible commodity. Regardless of the weighing requirements of one's business, the great diversity of products made this exhibit extremely interesting.

F. L. Smith Co. displayed the Lenix horizontal and vertical drives for beaters. The Lenix short center was also on display. In charge of the booth were Messrs. Clark, DeMarco, Sahmeo, and Salmonson.

Nash Engineering Co. gave the paper manufacturer a display of Nash Hytor compressors for air and gas, Jennings Hytor vacuum heating pumps, Jennings Hytor sewage ejector. Irving C. Jennings, president of the company, was in charge.

Morse Chain Co. employed a rotoscope model which showed the working of the silent chain drives with the novel "rocker joint." The working points of this joint were featured cleverly in another exhibit that consisted of a clock, the face of which was replaced by a large rocker joint, which was set in motion by the swing of the pendulum.

As an educational feature, a velopticon was used, which showed in a very clear way the good points of the chain.

Visitors were met by: C. D. C. Crandell and W. W. Bertrand of the New York office, J. S. White of Boston, J. H. Meaney of Philadelphia, A. B. Wray of Ithaca, and G. W. Pritchett of Charlotte, N. C.

A unique comparison between the priceless service of an ambulance at the time of an emergency and the pumping service rendered by S. F. Bowser & Co., Inc., well known lubrication engineers and manufacturers of Fort Wayne, Ind., is set forth in this company's recent advertisement in National Petroleum News. Bowser's national service organization is an available "doctor" to Bowser users in an hour or two, in most places, and over night in other places.

BATHURST LUMBER COMPANY, LIMITED

PRICE & PIERCE, LTD.
17 East 42nd Street, NEW YORK CITY

ARE NOW THE

SELLING AGENTS
for Bathurst Pulp in the United States

Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

Our pulp is made from Canadian Spruce
We ship in sheets, baled

BATHURST, NEW BRUNSWICK, CANADA

The B Co. Inc. QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

The Borregaard Company
200 Fifth Ave. Incorporated New York, N.Y.

Bleached and Unbleached
SULPHITES
KRAFT PULPS

Foreign and Domestic
GROUND
WOOD

PERKINS-GOODWIN CO.
NEW YORK
33 West 42nd St.

PAPER
PRINTING PAPER
OF
EVERY DESCRIPTION

EXPORTS

Exports of paper showed an increase from the United States during October last as contrasted with the preceding month, and also a gain over the shipments in the same month of 1923. Total exports of paper of all kinds from this country in October were valued at $2,359,486, compared with $1,952,044 in September, and $2,123,870 in October, 1923.

Exports of news print paper were substantially larger in October, amounting to 3,354,320 pounds, valued at $167,482, against 2,246,571 pounds of a value of $109,802 in the same month in the preceding year. Book paper shipments also were larger, totaling 2,028,972 pounds of a value of $212,177, contrasted with 1,651,841 pounds of a value of $209,887 exported in the same month of 1923.

Exports of paper and strawboard from the United States in October last reached a total of 6,159,632 pounds, valued at $235,881, against shipments of 4,911,220 pounds of a value of $210,440 in the previous October. Exports of kraft wrapping paper amounted to 98,405 pounds, valued at $9,992, in October, contrasted with 83,816 pounds of a value of $7,920 in the same month of 1923.

Writing paper exports in October were 383,948 pounds, valued at $61,183, compared with 351,490 pounds of a value of $73,150 in the same month a year previous.

IMPORTS

Wood Pulp

The market for foreign wood pulp in the United States has quieted down somewhat in the last several weeks. This has been a seasonal condition and no apprehension has been felt by importers, who, for the most part, are quite confident in their views regarding the outlook and who have firmly maintained quoted prices. It is nothing at all unusual for paper and board manufacturers to disappear as buyers of pulp during the holiday and inventory period, and their withdrawal from the market toward the close of 1924 was more to be expected than ordinarily because of the heavy purchases of foreign pulp effected in recent months.

From all reports, the pulp markets abroad are very firm. Mills in Scandinavia are well sold up; probably they have a larger volume of orders booked than in some years, and there is little or no pressure to market additional supplies in the United States. The Baltic has closed for the winter, and Swedish mills are reported working on production against the orders they have in hand for first open-water shipment in the spring. The mills in Scandinavia started the closed-navigation season with practically no surplus stocks of pulp, and this will eliminate the probability of selling pressure for the remainder of the winter, it is contended by importers.

Pulp has been coming into this country in large tonnage. As an example, Department of Commerce figures show that a new high record of pulp imports was established in October last, when a total of 120,991 net tons of chemical pulp and 27,290 tons of mechanical pulp was imported by the United States. The October imports brought the total importations of chemical pulp of all grades for the first ten months of the year up to 925,693 net tons, or a monthly average of 92,569 tons, compared with a monthly average for the same period of 1923 of 80,466 tons. Total imports of mechanical pulp in the first ten months of 1924 were 175,972 net tons, giving a monthly average of 17,597 tons, against an average of 20,851 tons monthly in the corresponding time of 1923.

Kraft pulp is probably the firmest grade of imported pulp. Prime Swedish kraft is quoted at 2.85 to 2.95 cents a pound ex dock New York, and some quotations range up to 3 cents. Offers of kraft are of limited tonnage, reflecting the fact that available supplies abroad are small, with import concerns here well sold up. Bleached sulphite of foreign origin also is firm in price at 3.75 to 4.25 cents a pound ex dock New York for the No. 1 grade, while strong unbleached sulphite of prime quality is selling between 2.70 and 2.90 cents on the dock. Easy bleaching sulphite is bringing 2.90 to 3 cents ex dock, while Scandinavian ground wood is quoted from $36 to $38 a ton on the dock at New York or other American Atlantic ports.

Receipts at the port of New York in December and current market quotations ex dock New York follow:

Bleached sulphite, No. 1	3.75- 4.25
Unbleached sulphite, strong, No. 1	2.70- 2.90
Unbleached sulphite, No. 2	2.50- 2.65
Easy bleaching sulphite	2.90- 3.15
Mitscherlich unbleached, genuine	2.85- 3.25
Mitscherlich unbleached, ordinary	2.60- 2.75
Kraft, standard Swedish	2.85- 3.00
Grand wood, per ton	36.00-38.00

Johaneson, Wales & Sparre, 1,000 bls. from Copenhagen and 2,250 from Sundsvall; Atterbury & McKelvey, 440 bls. from Christiania and 2,400 from Tofte; J. Andersen & Co., 800 bls. from Christiania, 1,500 from Sarpsborg, 1,200 from Iggesund, 600 from Hafslund, 300 from Copenhagen and 660 from Hamburg; National City Bank, 150 bls. from Christiania and 863 from Hamburg; Irving Bank-Columbia Trust Co., 398 bls. from Trieste; W. Hartmann & Co., 312 bls. from Trieste; Ira L. Beebe & Co., 3,665 bls. from Hamburg; Castle & Overton, 2,760 bls. from Hamburg; Industrial Fiber Co., 1,000 bls. from Gothenburg; E. M. Sergeant Co., 762 bls. from Gothenburg, 1,097 from Copenhagen and 6,150 from Harnosand; Scandinavian Pulp Agency, 625 bls. from Gothenburg, 1,750 from Sundsvall and 127 from Copenhagen; Bulkley, Dunton & Co., 2,625 bls. from Bremen, 2,875 from Iggesund, 750 from Gefle, 1,250 from Sundsvall and 600 from Copenhagen; Hartig Pulp Co., 3,375 bls. from Bremen, 1,875 from Gefle, 740 from Rotterdam and 500 from Hamburg; Pagel, Horton & Co., 1,500 bls. from Hornefors, 900 from Domsjo and 6,250 from Gefle; Tidewater Paper Mills Co., 22,996 bls. ground wood from Liverpool, N. S., and 6,027 bls. ground wood from Murray Bay; Mead, Patton & Co., 4,464 bls. from Nova Scotia; Equitable Trust Co., 842 bls. from Hamburg; Lagerloef Trading Co., 150 bls. from Bremen; Nilsen, Lyon & Co., 125 bls. from Sundsvall; Guaranty Trust Co., 1,500 bls. from Sundsvall; E. J. Keller Co., 4,235 bls. from Sundsvall and 974 from Rotterdam; International Acceptance Bank, 575 bls. from Rotterdam and 58 from Copenhagen; Buck, Kaier & Co., 3,700 bls. from Copenhagen; Central Union Trust Co., 500 bls. from Hafslund and 700 from Hamburg; Poland Paper Co., 2,250 bls. from Hafslund; F. R. Eaton, 800 bls. ground wood from Wolville, N. S.; Irving Bank-Columbia Trust Co., 925 bls. from Hamburg and 611 from Copenhagen; Order, 1,164 bls. from Hamburg, 830 from Sarpsborg, 5,307 from Raume, 3,155 from Kotka, 1,250 from Gefle and 150 from Copenhagen.

Paper Stock

Importations of papermaking rags through the port of New York were exceedingly heavy during December. Shipments came in at a rate which doubtless established a new high record of rag movement from Europe to this country, although it is presumed the great bulk of the rags imported was roofing stock. Receipts of old rope also were fairly large, and some

J. ANDERSEN & CO.
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BLEACHED AND UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden

The Pulp and Paper Trading Co.
21 East 40th Street New York City

DEALERS IN DOMESTIC CHEMICAL AND MECHANICAL PULPS AND PAPER

AGENTS FOR
J. & J. Rogers Company, Ausable Forks, N. Y.
E. B. Eddy Company, Ltd., Hull, Canada
Canadian Kraft Limited, Three Rivers, Canada
Dealers in Wayagamack Kraft Pulp
Howard Smith Paper Mills, Montreal, Quebec
EASTERN AGENTS of Sulphite Pulp. Made by
Port Huron Sulphite & Paper Co., Port Huron, Mich.

STANDARD BLEACHING POWDER

Manufactured by
Pennsylvania Salt M'f'g Co.
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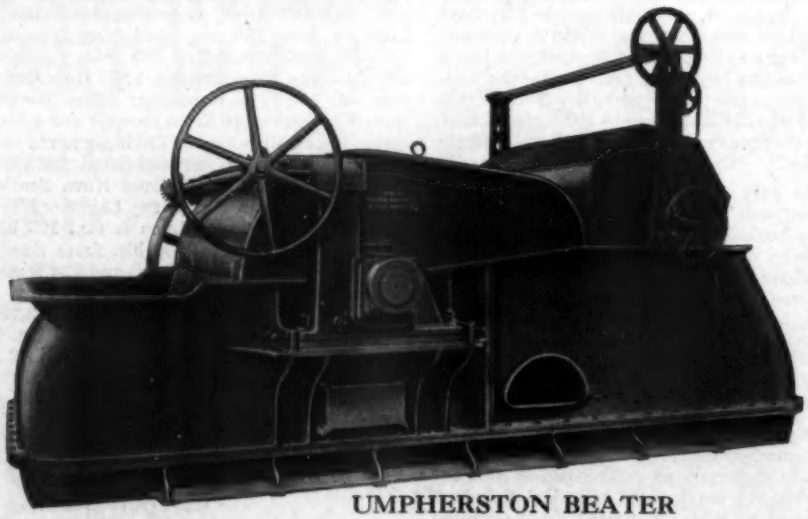
CASEIN

Standard Quality
Lowest Prices

The Casein Manufacturing Company
15 Park Row New York

Holyoke Machine Co., Holyoke, Mass.
Makers of Improved Machinery for Wood Pulp and Paper Mills



UMPHERSTON BEATER

Washing and Beating Engines, Wood Pulp Grinders, Barkers, Chippers, Rag and Paper Dusters, Rag Cutters, Hydraulic Pumps and Presses, Hercules Water Wheels and Governors, Super-Calenders, Platers, Cotton and Paper Rolls.

sizable amounts of old bagging, waste paper and other papermaking raw materials were landed during the month. Imports of all kinds of papermaking stock through the port of New York in December, with names of consignees, were as follows:

Old Rope

Brown Bros. & Co., 550 bls. from Antwerp, 387 coils and 388 bls. from Rotterdam, 399 coils and 20 bls. from Bristol, and 25 bls. and 87 coils from Hamburg; S. Birkenstein & Sons, 100 coils from Antwerp; International Purchasing Co., 62 bls. and 54 coils from Rotterdam; Stone Bros. Co., 53 coils from Rotterdam; Yglesias & Co., 4 bls. from Havana; Montell & McDonough, 6 bls. from Nassau; Ellerman's Wilson Line, 34 coils and 33 bls. from Hull and 275 coils from London; W. Schall & Co., 40 coils from Hamburg; American Exchange National Bank, 83 bls. from Barcelona and 226 coils from Hull; A. F. Roloson, 39 coils from Swansea; First National Bank of Boston, 31 bls. from Leghorn; Equitable Trust Co., 93 bls. from Rotterdam and 115 coils from Marseilles; E. J. Keller Co., 243 coils from Copenhagen, 29 bls. from Hamburg, 45 bls. from Barcelona and 51 bls. from Bremen; Guaranty Trust Co., 45 bls. from Barcelona; Order, 32 coils and 19 bls. from Bremen, 302 coils from Rotterdam, 105 coils and 41 bls. from Hamburg and 76 bls. from Copenhagen.

Old Bagging

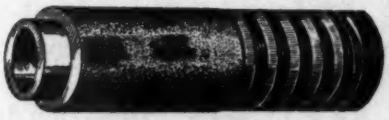
E. J. Keller Co., 230 bls. from Hamburg, 199 from Rotterdam, 262 from Antwerp and 54 from Havre; Garfield National Bank, 113 bls. from Antwerp; P. Berlowitz, 93 bls. from Rotterdam; Daniel M. Hicks, Inc., 35 bls. from Rotterdam; E. Butterworth & Co., 100 bls. from Alexandria, 22 from Rotterdam and 62 from Antwerp; S. Birkenstein & Sons, 78 bls. from Rotterdam; Coal & Iron National Bank, 26 bls. from Hamburg; Equitable Trust Co., 111 bls. from Havre and 23 from Manchester; International Acceptance Bank, 54 bls. from Havre; Banque Belge, 79 bls. from Havre; Stone Bros. Co., 127 bls. from Rotterdam; Whaling Waste Products Co., 80 bls. from Antwerp; Maurice O'Meara Co., 42 bls. from Antwerp; American Wool Stock Co., 96 bls. from Antwerp; Castle & Overton, 147 bls. from Rotterdam; British Bank of South America, 84 bls. from Liverpool and 16 from Manchester; A. W. Fenton, Inc., 74 bls. from Rotterdam; Guaranty Trust Co., 29 bls. from Manchester; Goschens & Cunliffe, 74 bls. from Liverpool; H. S. Prince, 20 bls. from Dublin; W. Schall & Co., 97 bls. from Hamburg; Order, 71 bls. from London, 68 from Hamburg, 33 from Geona, 43 from Bremen and 181 from Glasgow.

Rags

J. J. Patricof, 101 bls. from Rotterdam and 136 from Antwerp; Stone Bros. Co., 214 bls. from Antwerp, 8 Liverpool, 650 Rotterdam, 242 Algiers, 1,485 Havre, 12 Hamburg, 424 Dunkirk, 116 Barrow, and 125 Bremen; E. J. Keller Co., 3,436 bls. from Hamburg, 52 Amsterdam, 54 Rouen, 636 Antwerp, 1,042 Copenhagen, 2,274 Rotterdam, 108 Genoa, 296 Havre, 95 Dunkirk, 60 Buenos Aires, 222 Algiers, 393 Bremen and 390 Kobe; C. R. Spence & Co., 111 bls. from Antwerp and 43 from Belfast; A. Hurst & Co., 21 bls. from Antwerp; Maurice O'Meara Co., 55 bls. from Antwerp, 8 Manchester, 54 Havana and 190 Buenos Aires; Daniel I. Murphy, Inc., 87 bls. from Havre; Robert Angles, 71 bls. from Havre; Castle & Overton, 354 bls. from Rotterdam, 44 Antwerp, 38 Bordeaux, 196 Dunkirk, 5 Bremen and 111 Leghorn; J. M. Jaffe, 45 bls. from Bordeaux and 56 from London; Darmstadt, Scott & Courtney, 25 bls. from Rotterdam; G. M. Graves Co., 45 bls. from Rotterdam; P. Berlowitz, 389 bls. from Rotterdam and 83 from Havre; Robert Blank, 326 bls. from Rotterdam and 522 from Antwerp; Textile Waste Merchandising Co., 100 bls. from Alexandria; Atterbury & McKelvey, 223 bls. from Rotterdam; Whaling Waste Products Co., 84 bls. from Rotterdam and 197 from Antwerp; Daniel M. Hicks, Inc., 38 bls. from Rotterdam; Salomon Bros. & Co., 43 bls. from Havre; Albion Trading Co., 107 bls. from Havre and 79 from Dunkirk; Atterbury Bros., 138 bls. from Havre; Katzenstein & Keene, 102 bls. from Dunkirk, 87 Antwerp and 274 Hull; H. Feldman & Co., 221 bls. from Bremen; Kuttroff, Pickardt & Co., 388 bls. from Rotterdam; S. Birkenstein & Sons, 148 bls. from London; M. Wolfer & Co., 111 bls. from Havana; George W. Millar & Co., 66 bls.

Standard Wood Pipe

"The Pipe that Stands the Test"



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Used extensively by the Paper Industry for conveying paper stock and acids. Especially adapted for conveying sulphite and ground wood.

Has greater carrying capacity than iron pipe, costs less to install and much less liable to freeze than any other type pipe.

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Williamsport, Penna., U. S. A.

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Draper Hollow Balanced Brass Balls

FOR STUFF PUMPS

Absolutely balanced; will not pound out of shape

Specify these when ordering new pumps.

Order these to replace worn-out balls.

We make a specialty of repairing stuff pump balls.

We also manufacture—

SOLID BRASS BALLS
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BALL CHECK VALVES
VALVE FACING TOOLS

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Port Huron, Mich. **Petrolea, Canada**

Every ball bears our registered trade-mark

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Papers:

Genuine Vegetable Parchment
For wrapping all moist and greasy foodstuffs.

Bread Wraps—Waxed Papers
For tight-sealing cartons and wrapping dry foods.

Bond and Ledger Papers
All standard sizes, weights and colors.

Handy Household Papers in Rolls
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Manufacturers of
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KALAMAZOO, MICHIGAN
Where Quality is the watchword

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FOREIGN AND DOMESTIC

PAPER MAKERS' SUPPLIES
CHEMICAL AND MECHANICAL PULPS
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EASTERN MANUFACTURING COMPANY

BLEACHED SULPHITE

Made from spruce grown in the forests of Northern Maine.

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COATED and BOOK PAPERS
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from Hull; William Steck & Co., 247 bls. from Hull; True & McClelland, 45 bls. from Hull; Chase National Bank, 32 bls. from Antwerp and 151 from Bremen; Banque Belge, 536 bls. from Antwerp, 46 Liverpool and 463 Hamburg; U. S. Mortgage & Trust Co., 83 bls. from Antwerp, 80 Hamburg and 135 Hull; Coal & Iron National Bank, 345 bls. from Antwerp, 79 Manchester and 502 Venice; Atlantic Exchange Bank & Trust Co., 35 bls. from Antwerp and 123 from Bordeaux; Bank of New York & Trust Co., 119 bls. from Copenhagen; National City Bank, 25 bls. from Bombay, 50 Havre, 177 Bremen, 331 Hamburg, 212 Antwerp, 273 London and 99 Barcelona; Chemical National Bank, 204 bls. from Rotterdam, 52 Bremen and 79 Barcelona; National Bank of New York, 84 bls. from Hamburg; Union National Bank of Philadelphia, 144 bls. from Hamburg and 145 Bremen; Irving Bank-Columbia Trust Co., 369 bls. from Constantinople; Bankers Trust Co., 44 bls. from Bristol and 59 Hamburg; Anglo-South American Trust Co., 103 bls. from Bristol, 43 London, 46 Manchester, 55 Barcelona, 247 Buenos Aires and 36 Antwerp; National Bank of Commerce, 264 bls. from Bristol and 208 Manchester; Equitable Trust Co., 15 bls. from Havre, 214 Marseilles and 173 Hamburg; Philadelphia National Bank, 166 bls. from Alexandria, 84 Antwerp and 93 Genoa; State Bank, 156 bls. from London; First National Bank of Boston, 45 bls. from Havre and 10 Rotterdam; Guaranty Trust Co., 393 bls. from Bremen, 39 Hamburg and 111 Havre; Mechanics & Metals National Bank, 30 bls. from Rotterdam and 43 Genoa; Seaboard National Bank, 115 bls. from Hamburg; Goldman, Sachs & Co., 330 bls. from Bremen and 19 Hamburg; Brown Bros. & Co., 116 bls. from Rotterdam, 480 Hamburg, 106 Belfast, 348 Bremen, 81 Glasgow, 108 Hull, 230 Swansea and 203 Antwerp; A. W. Fenton, Inc., 182 bls. from Rotterdam, 423 Antwerp, 359 Havre, 81 Dunkirk, and 74 Naples; Amsinck, Sonne & Co., 525 bls. from Alexandria, 92 Liverpool, 36 Bordeaux, and 122 Glasgow; East River National Bank, 459 bls. from Naples and 198 Leghorn; International Acceptance Bank, 54 bls. from Hamburg; Garfield National Bank, 173 bls. from Hamburg and 118 Copenhagen; British Bank of South America, 63 bls. from Manchester; American Exchange National Bank, 135 bls. from Manchester, 166 Havre and 340 Antwerp; Capitol National Bank, 213 bls. from Rotterdam; American Trust Co., 135 bls. from Glasgow; J. B. Moors & Co., 224 bls. from Antwerp; Ancram Paper Mills, 51 bls. from Havre; R. F. Downing & Co., 140 bls. from Manchester; American Express Co., 47 bls. from Liverpool; I. Abela & Co., 80 bls. from Trieste and 90 Malta; Crane & Co., 20 bls. from Havre; McKenzie & Co., 52 bls. from Dunkirk; Strupp & Co., 351 bls. from Bremen and 152 Hamburg; W. Schall & Co., 79 bls. from Hamburg, 44 Rio de Janeiro and 28 Manchester; Order, 165 bls. from Antwerp, 1,082 Liverpool, 623 Copenhagen, 1,381 Hamburg, 128 Constantinople, 10 Colombo, 59 Alexandria, 378 London, 312 Bremen, 43 Glasgow, 2 Manchester, 272 Genoa, 77 Danzig, 508 Swansea, 15 Bombay and 457 Barcelona.

Miscellaneous Paper Stock

Banque Belge, 36 bls. from Havre; Daniel M. Hicks, Inc., 106 bls. from Rotterdam and 22 Dunkirk; Brown Bros. & Co., 68 bls. from Glasgow; Mechanics & Metals National Bank, 45 bls. from Glasgow and 269 Palermo; Coal & Iron National Bank, 114 bls. from Glasgow; E. J. Keller Co., 48 bls. from Dunkirk, 49 Hamburg and 577 Antwerp; National City Bank, 322 bls. from Hamburg; Equitable Trust Co., 225 bls. from Antwerp; American Exchange National Bank, 113 bls. from Hamburg and 49 Glasgow; E. Butterworth & Co., 67 bls. from Dunkirk; Whaling Waste Products Co., 52 bls. from Antwerp; British Bank of South America, 171 bls. from Manchester; Baring Bros. & Co., 25 bls. from Glasgow; T. D. Downing & Co., 10 bls. from Belfast; Guaranty Trust Co., 34 bls. from Rotterdam; Order, 112 bls. from Manchester and 488 Liverpool.

Paper

No feature was noted in the import trade in paper of the United States during December. Usual amounts of most kinds of paper were received, judging from the arrivals at the port of New York, with fair-sized shipments of newsprint and wrapping included. There were also moderate amounts of tissue, filter, hanging and other kinds of paper received.

WAUSAU SULPHATE FIBRE CO.
MOSINEE, WISCONSIN
TRADE MARK
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Cut down *excessive* wrapping paper investment. Why carry two wrapping paper lines for one wrapping paper *purpose?*

MOSINEE

presents a perfect wrapping paper, weight and strength for each wrapping purpose. Made in all weights from 15 pounds to 100 pounds basis. The one complete, standardized and economical line of wrapping paper sold.

Mosinee Kraft

"The Wrapper that Delivers the Goods"

SULPHATE OF ALUMINA
MANUFACTURED BY
THE JARECKI CHEMICAL CO.

SODA ASH 58%
MANUFACTURED BY
PITTSBURGH PLATE GLASS CO.
COLUMBIA CHEMICAL DIVISION

The Isaac Winkler & Bro. Co.
Sole Selling Agents
Cincinnati New York

RUSS GELATIN CO.
WORKS—WESTFIELD, MASS.
MANUFACTURERS OF
GELATIN and GLUE
ANIMAL SIZING GLUE STOCK
LARGEST SPECIALISTS IN AMERICA ON
FINE WRITING PAPER SIZING
E. F. RUSS COMPANY 287 Atlantic Avenue BOSTON, U. S. A.

New Sand Filter

A SPECIAL filter for paper mills, producing all the results the paper manufacturer desires. It is a modification of the well known Hungerford filter adapted to paper mill use. It is constructed of concrete, strictly wrought iron pipe, brass strainers and especially prepared silica sand. It is as durable and efficient as can be built at any cost. It can be sold at a very low figure.

This filter gives perfectly clear water, washes thoroughly, does not require renewal of the sand bed, is absolutely reliable in the performance of its duty and requires a minimum amount of attention.

Send for full particulars

Hungerford & Terry, Inc.
CLAYTON, N. J.

UNION SULPHUR

The Best for Better Sulphite Pulp

Guaranteed 99½ Per Cent Sulphur
Combined with 100 Per Cent Service

Substantial warehouse stocks always maintained at strategically located seaboard stations insure

Prompt Delivery Against All Orders

The Union Sulphur Company
Frasch Bldg., 33 Rector St., New York, N. Y.

The survival of the fittest

The easiest way to survive competition is to reduce the cost of production.

Our equipment will help you to do this:

Jenssen Acid Towers
Jenssen Spray Coolers
Bullard Gas Washer
Decker Cooking Process
Kamyr Feltless Wet Machine

G. D. Jenssen Co.
200 Fifth Ave., New York City

Importations of paper of all kinds through the port of New York in December follow, these data being taken from the manifests of steamers reaching this port during the month:

Printing

W. Hartmann & Co., 60 rolls and 2 bls.; P. C. Zuhlke, 87 cs.; Drinkhausen & Hollkott Paper Co., 57 cs. and 61 rolls; H. Aschpurvis, 70 rolls; B. F. Drakenfeld & Co., 126 cs.; J. P. Heffernan Paper Co., 10 bls. and 418 rolls; C. G. Keferstein, 376 rolls and 7 cs.; M. Gottesman & Co., 493 rolls; J. J. Murphy Paper Co., 157 bls.; Maurice O'Meara Co., 66 bls. and 260 cs.; Equitable Trust Co., 274 rolls; H. Reeve Angel & Co., 1,797 rolls, 77 bls. and 207 cs.; Perry, Ryer & Co., 89 cs.; Chemical National Bank, 50 rolls; New York & Hauseatic Corp., 334 rolls; E. Dietzgen & Co., 110 cs.; Parsons & Whittemore, 1,295 rolls; Keuffel & Esser Co., 67 cs. and 36 rolls; Tidewater Paper Mills Co., 5,923 rolls; P. Puttmann, 28 cs.; Steffens, Jones & Co., 23 cs.; H. Hol-Hesen, Inc., 252 rolls; C. Steiner, 38 cs.; North German Lloyd, 54 cs.; Oxford University Press, 10 cs.; Bankers Trust Co., 208 rolls; Fourth & First National Bank of Nashville, 222 rolls; Chatham & Phenix National Bank, 152 rolls; Order, 2,096 rolls.

Wrapping

F. C. Strype, 7 rolls and 7 cs.; DeNobili Cigar Co., 82 bls.; Hensel, Bruckmann & Lohrbacher, 32 cs.; Chemical National Bank, 392 bls. and 32 rolls; J. P. Heffernan Paper Co., 756 bls.; C. K. MacAlpine & Co., 595 rolls and 58 bls.; Gilbert Paper Co., 122 rolls and 86 bls.; Maurice O'Meara Co., 66 rolls and 904 bls.; Chatham & Phenix National Bank, 130 rolls; Borregaard Co., 3,862 rolls and 902 bls.; International Acceptance Bank, 152 bls.; A. E. McAdam & Co., 8 bls.; C. Steiner, 198 cs.; W. Schall & Co., 275 bls.; Fidelity International Trust Co., 470 rolls; Republic Bag & Paper Co., 1,199 bls. and 23 cs.; Wilkinson Bros. & Co., 54 cs. and 17 bls.; Schenkers, Inc., 5 cs.; Blauvelt-Wiley Paper Mfg. Co., 170 bls.; American & Cuban S.S. Co., 20 cs.; Equitable Trust Co., 70 bls.; Bank of America, 296 bls.; International Forwarding Co., 11 cs.; Order, 1,186 bls., 125 cs. and 1,646 rolls.

Cigarette

Standard Products Corp., 333 cs.; American Tobacco Co., 2,350 cs.; DeManduit Paper Corp., 635 cs.; R. J. Reynolds Tobacco Co., 2,020 cs.; Equitable Trust Co., 5 cs.; P. J. Schweitzer, 129 cs.; M. Spiegel & Sons, 17 cs.; F. P. Gaskell & Co., 40 cs.; Order, 5 cs.

Writing

Guibont Freres & Co., 110 cs.; J. W. Hampton Jr. & Co., 26 cs.; A. Goodman & Co., 5 cs.; J. C. Robold & Co., 2 cs.; C. Morrison, 3 cs.; Sternberg Co., 16 cs.; International Forwarding Co., 3 cs.; C. H. Powell & Co., 4 bls.

Drawing

E. Dietzgen & Co., 53 cs.; H. Reeve Angel & Co., 4 cs.; Keuffel & Esser Co., 180 cs.

Filter

H. Reeve Angel & Co., 12 cs. and 25 bls.; J. Manheimer, 138 bls.; E. Fougera & Co., 108 cs.; G. Leuders & Co., 14 bls.

Tissue

Meadows, Wye & Co., 18 cs.; Hawaiian Steamship Co., 4 cs.; Iwai & Co., 12 cs.; Milton Snedeker Corp., 62 cs.; J. B. Mast & Co., 3 cs.

Photo

Gevaert Co. of America, 71 cs.; P. Puttmann, 11 cs.; Globe Shipping Co., 50 cs.; J. J. Gavin & Co., 4 cs.; F. G. Prager & Co., 27 cs.; P. C. Zuhlke, 61 cs.

Hanging

F. J. Emmerich & Co., 217 bls.; A. C. Dodman Jr. & Co., 77 bls.; J. W. Hampton Jr. & Co., 1,545 bls.; F. G. Prager & Co., 24 cs.; G. J. Hanken & Co., 7 bls.; C. A. Haynes & Co., 133 bls.; R. F. Downing & Co., 16 bls. and 35 cs.; W. H. S. Lloyd & Co., 56 bls.; International Mercantile Marine Co., 16 cs.; Drinkhausen & Hollkott Paper Co., 72 rolls and 904 bls.; Order, 2 bls. and 97 rolls.

LOCKPORT
Felts

EXCLUSIVE MAKERS OF

Paper Makers' Felts

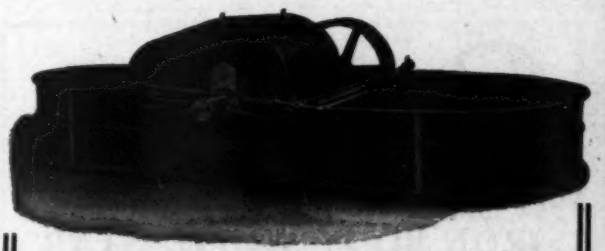
Have You Run Them?
If Not, Why Not?

Are You Interested
in
Accurate Running
Felts?

Give Us a Trial
Get Authentic Information
Ask the Men Who Run Them

Yours for service

LOCKPORT FELT CO., Newfane, N. Y.



"Dayton"
Beating Engines
are Built
for
Heavy Duty

Dayton Beater and Hoist Co.
DAYTON, OHIO

150 lbs.—125 lbs.=25 lbs. waste

Can this be said of your plant?

The process or auxiliary that's running at the boiler's full pressure when it actually needs, say, 25 lbs. less than that, is piling up a big annual waste. A corresponding saving is brought when a Davis Regulator is applied there.

Davis Regulators do this work with greatest dependability and almost no attention. They have a high grade bronze tubing cylinder and a piston made of a bronze casting with grooves cut its entire length. Steam condenses in these grooves forming a water seal. Friction is negligible. Made in sizes to suit all requirements. Special steel regulators, monel trimmed, for 350 lb., 800 deg. steam. The catalog describes the rest of the time-tested Davis line. Send for your free copy, addressing the G. M. Davis Regulator Co., at 414 Milwaukee Ave., Chicago.

Balanced valves
Float valves
Fluid control valves
Back pressure valves
Exhaust relief valves
Water relief valves
Stop and check valves
Steam traps
Pump governors valves
Emergency stop valves
Flow regulators
Non-return valves

DAVIS VALVE SPECIALTIES
STEAM SAVERS SINCE 1875
PII-F-BTG

Made for maximum service not merely the average

TRADE JENKINS MARK

Jenkins Bros

Full flow instantly

Fig. 334, screwed, Standard Iron Body Quick Opening Gate Valve.

A very convenient and time-saving valve for use on drain lines, and where a valve must be frequently opened and closed. The sliding stem and lever can be locked in the closed, wide open, or in any intermediate position.

Like all other Jenkins Valves, this one is designed and constructed for severe use in the service for which it is recommended. All parts possess sufficient strength to resist the strains to which the valve will be subjected.

Valves in bronze, iron, and steel for all paper manufacturing requirements. At supply houses everywhere.

JENKINS BROS.

80 White Street.....New York, N. Y.
524 Atlantic Avenue.....Boston, Mass.
133 No. Seventh Street.....Philadelphia, Pa.
646 Washington Street.....Chicago, Ill.

JENKINS BROS., LIMITED
Montreal, Canada London, England

Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

Powell Valves

Will Serve Long Beyond the Span of Life Usually Allotted to Valves

IRON BODY WHITE STAR GATE VALVE

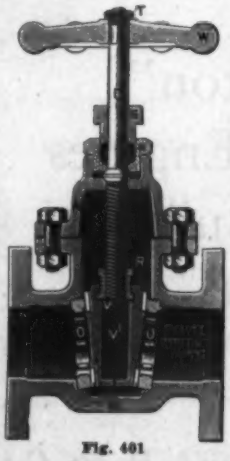


Fig. 401

Double wedge self-adjusting discs of non-corrosive White "POWELLIUM" Nickel. Outside screw stem and yoke.

Steam working pressure up to 250 pounds.

SEE POWELL EXHIBIT SPACE NO. 504, NATIONAL EXPOSITION OF POWER AND MECHANICAL ENGINEERING, DEC. 1 TO 8, 1934, GRAND CENTRAL PALACE, NEW YORK, N. Y.

Write for descriptive literature.

THE WM. POWELL CO.

Dependable Engineering Appliances

CINCINNATI OHIO

Increasing Efficiency and Reducing Costs with Mechanical Handling Equipment

There is hardly an industry today that cannot profitably employ mechanical elevating and conveying equipment for handling raw or finished products. Pushing the product from place to place with hand labor doesn't pay. It lowers the plant efficiency and keeps production costs relatively high.

Webster mechanical equipment for handling raw and finished products is the result of many years of development and experience. Today, Webster elevators and conveyors are serving profitably in many of our industries. In some of them production is wholly dependent upon the conveying system.

Webster engineers will be glad to confer with you on your handling problems and advise on suitable equipment.

THE WEBSTER MFG. COMPANY

4500-4560 Cortland Street
Chicago, Illinois

Board

New York Label & Box Works, 5 cs.; W. Hartmann & Co., 136 bls.; Metropolitan Import and Mfg. Co., 20 cs.; Fibre Case and Novelty Co., 6 bls.; Godet, Inc., 4 cs.; Interstate Corrugated Box Co., 48 rolls; Adrian Vuyck, 873 rolls; Chase National Bank, 370 bls.; Coty, Inc., 50 cs.; Lagerloef Trading Co., 774 bls. and 161 rolls; J. C. Robold & Co., 20 cs.; Schenkers, Inc., 14 cs.; F. C. Strype, 62 cs.; Order, 45 bls.

Miscellaneous

Whiting-Patterson Co., 35 cs.; Japan Paper Co., 15 cs.; Coenca-Morrison Co., 3 cs.; P. H. Petry & Co., 21 cs.; C. W. Williams & Co., 40 cs.; Phoenix Shipping Co., 16 cs.; American Shipping Co., 11 cs.; Judson Freight Forwarding Co., 4 cs.; Globe Shipping Co., 5 cs.; A. Goodman & Co., 16 cs.; W. Schall & Co., 34 cs.; M. Flinn & Co., 3 cs.; Dupont Cellophane Co., 2 cs.; Morrison Machine Co., 11 cs.; G. W. Sheldon & Co., 2 cs.; Whitefield Paper Works, 25 cs.; Bendix Paper Co., 3 cs.; R. F. Downing & Co., 42 cs.; C. H. Boulin, 13 cs.; F. L. Kraemer & Co., 14 cs.; O. G. Hempstead & Sons, 5 cs.; Gehrig & Co., 22 cs.

Foreign Trade Opportunities

Additional information regarding the following foreign trade opportunities issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce may be obtained from the Bureau in Washington, D. C., or its branch offices. It is requested that the number of the inquiry be given at all times.

No. 12534—Cartons, cardboard, for confectionery. Welling, New Zealand. Purchase and agency desired.

No. 12534—Glassine, cellophane and gelatine paper. Welling, New Zealand. Purchase and agency desired.

No. 12535—Old newspapers. Bombay, India. Purchase and agency desired.

No. 12531—Paper. Dewas, India. Purchase and agency desired.

No. 12536—Stencil paper for mimeograph machines. Christiania, Norway. Purchase and agency desired.

No. 12533—Vulcanized fiber. Lausanne, Switzerland. Agency desired.

No. 12580—Caustic soda and soda ash. Amritsar, India. Purchase and agency desired.

No. 12681—Old newspapers in bales. Semarang, Java. Purchase and agency desired.

No. 12668—Paper and stationery. Zurich, Switzerland. Purchase and agency desired.

No. 12669—Wall paper. Copenhagen, Denmark. Agency desired.

No. 12688—Felts for paper machines. Christiania, Norway. Agency desired.

No. 12819—Gelatine paper, fully transparent. Sydney, Australia. Purchase and agency desired.

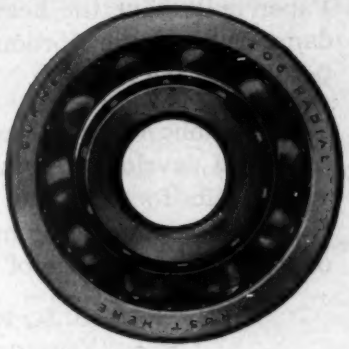
No. 12787—Paper, writing, typewriting, wrapping and blotting. Pleven, Bulgaria. Purchase desired.

No. 12818—Paper and cardboard, all kinds, including printing and carbon paper. Bombay, India. Purchase and agency desired.

U. S. Leads in Paper Consumption

Along with the use of paper for printing has gone a tremendous increase in its use for other purposes, and new ones are a matter of daily occurrence. A few figures show that in the United States at least we are now in what may be truly called a paper age. On the 1920 basis, according to R. S. Kellogg in American Forests and Forest Life, the per capita consumption of paper in Russia was 6 pounds, and in Japan 12 pounds; in Scandinavia, a region of general education, it was 33 pounds; and in Germany, the most thoroughly schooled nation in the world, it was 45 pounds; but this was by no means the limit. At the same time, the per capita consumption in Great Britain was 76 pounds, while in the United States it was 150 pounds, or, in other words, more than three times the consumption in Germany and practically twice that in Great Britain. This is convincing evidence of the wide diversity of the use of paper in this country.

GURNEY
BALL BEARINGS



for
Greater Capacity

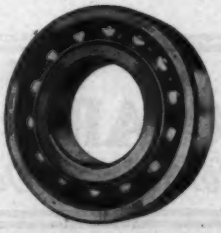
COMPARE Gurney Ball Bearings—Maximum Service—Maximum Capacity type—with like sizes of other bearings. Note the greater number of maximum size balls per bearing. The race curvature is such that they have increased areas of contact.

These are the secrets of their ability to safely carry greater loads than other bearings of equal size. This is done without affecting the life of the bearing or its efficiency.

Gurney load capacity ratings are considerably higher than are the ratings for bearings of other types—and you will find Gurneys performing unfailingly in any number of machines where this additional capacity is essential to the successful performance of the machines.

GURNEY
BALL BEARINGS

1827-4



Marlin-Rockwell Corp.
successor to
GURNEY BALL BEARING CO.
JAMESTOWN, N. Y.

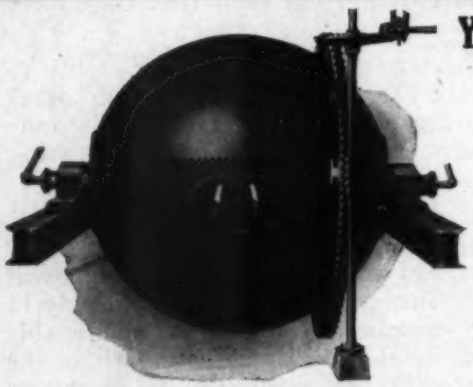
THE REPUBLIC RUBBER CO. YOUNGSTOWN-OHIO

Paper mills have the heated damp rooms—the cold damp rooms—the Jordon Engine—the beater—all peculiar to the industry.

The Republic Rubber Company studied these conditions and developed Republic Double Cross and Invader Belts for this kind of service. The Republic Rubber Company recommends these belts for economy and for the peace of mind of the mill operator.

THE REPUBLIC RUBBER COMPANY
Youngstown, Ohio

REPUBLIC BELTING



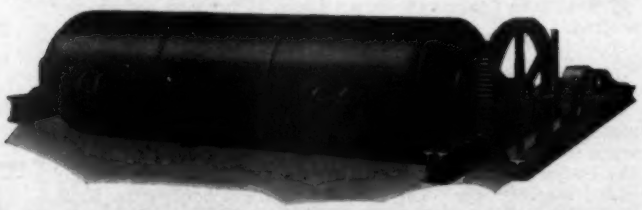
Globe and Cylinder Rotary Bleaching Boilers
Digesters
Riveted Steel Tanks
Flumes, Smokestacks, Penstocks, General Steel Plate Construction of every description

You Can Absolutely Depend Upon Biggs Equipment

When you have Biggs Rotary Bleaching Boilers or Digesters installed, you can bank on many, many years of satisfactory performance, with a very low maintenance cost.

We can make the above statement very conservatively, for it is based not on hope, not on theory, but on actual experience in this business for nearly forty years. You can go to mill after mill and *SEE* Biggs equipment that was installed back in the 90's, still doing its work faithfully, alongside of newer Biggs Rotaries of a later date. Naturally, our customers come back to us when they need additional equipment of this kind.

The Biggs Boiler Works Company
Seneca Place and Case Ave. Akron, Ohio
Eastern Representative, Mr. Grenville A. Harris, 15 Park Row, New York City



The Biggs Boiler Works Co. Akron Ohio

GLOBE and CYLINDER
ROTARY BLEACHING BOILERS
for Years of Dependable Cooking and Bleaching